

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

2066.—VOL. XLV.

LONDON, SATURDAY, MARCH 27, 1875.

WITH
SUPPLEMENT. PRICE
PER ANNUM, BY POST, 21s.

JAMES H. CROFTS, STOCK AND SHARE BROKER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
Established 1842.
Business transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Banks, Bonds, Railways, Miscellaneous, Insurance, Assurance, Gas, and Dock Shares.
Shares negotiated in Shares not having a general market value.
Business in all COLLIERY and IRON Shares.
Shares on hand in all the leading TIN, COPPER, and LEAD Shares.
Shares sold for forward delivery (one or two months) on deposit of 20 per cent.
Accounts opened for the Fortnightly Settlement.
Monthly and Daily Price Lists issued.
Bankers: City Bank, London; South Cornwall Bank, St. Austell.

DEALINGS in the following, or part:—30 Cardiff, £4 8s. 9d.; 10 Chicago, £3 11s. 3d.; 100 Cremer and Abraham, 8s.; 50 Chapel House, 24s.; 100 Langdale Chemical, 12s.; 100 Plymlimmon, 4s. 6d.; 100 Positive, 15s. 9d.; 75 Mountain; 50 The Gold; 15 Thorp's Gawber.

—SPECIAL BUSINESS in CHAPEL HOUSE COLLIERY shares, yielding at present upwards of 17 per cent. Also BILSON and CRUMP, THORP'S GAWBER, 4s. PLYMlimmon, GLAISDALE QUARRY, and SPOON LANE COLLIERY.

W. H. BUMPPUS, STOCK AND SHARE BROKER,
44, THREADNEEDLE STREET, LONDON, E.C.
Business in MINING and COLLIERY Shares of every description, British and Foreign Stocks, Colonial Government Bonds, Railways, Banks, and Miscellaneous Shares, and all Securities dealt in on the London Stock Exchange, for INVESTMENT or SPECULATION.

Purchases and Sales negotiated in Unmarketable Stocks and Shares.
Speculative Accounts opened for the Fortnightly Settlement.
References given and required when necessary.
Stock and Share List forwarded to bona fide Investors free on application.
Bankers: The National Provincial Bank of England, E.C.

H. B. has SPECIAL BUSINESS in the undermentioned:—
100 Frontino, 6s. 3d. 70 Prince of Wales, 9s 3d
25 Flagstaff, 22s. 3d. 25 Penruthal, 1s.
30 Javali, 13s. 100 Penruthal, 1s.
50 Gold, 4s. 16 Richmond, 27s. 9d.
50 Gold Run, 20s. 10 Roman Grav., 21s.
25 Hingston, 19s. 6d. 50 St. Patrick, 21s.
50 Javali, 16s. 25 Sweetland, 29s. 9d.
50 Lay Hall Colliery, 10 So. Conduorow, 24s 8d
70 Last Chance, 21s. 20 So. Rom. Gravels, 27s.
25 Ladywell, 22s 13s. 9d. 50 Teoma, 11s. 3d.
100 Malabar, 2s. 10 Tunkerville, 210s.
100 Malpaso, 2s. 25 United Mexican, 23s.
40 Marke Valley, 21s 3d 5 Van, 22s 8d.
20 New Consols, 23s. 20 Van Consols, £2 13s 9d.
25 New Quebrada, 24s 6s 25 W. Tunkerville, 21s.
50 Old Treburgett, 8s. 50 West Mostyn, 23s.
50 West Lovell, 27s. 20 Welsh Ironworks.
30 Parys Mountain, 12s 6s 10 Wh. Grenville, 25s.
60 Penruthal, 11s. 50 Port Phillip, 13s. 6d.
50 Port Phillip, 13s. 6d. 15 Wheal Pever, 25s.
100 Plymlimmon, 4s. 100 Yorke Peninsula, 9s 6d

R. E. J. BARTLETT, STOCK AND SHARE DEALER,
No. 30, GREAT ST. HELEN'S, LONDON, E.C. (Established 10 years).
SPECIAL BUSINESS in South Conduorow and Prince Patrick Shares, at prices.

Now ready, price 1s. 6d., post free 2d. extra.

HOW TO INVEST; or, CAPITAL ITS PROFITABLE EMPLOYMENT BY JUDICIOUS INVESTMENTS.
"Everybody should read it."

Published by E. J. BARTLETT, 30, Great St. Helen's, London, E.C.

JOHN RISLEY (SWORN), STOCK AND SHARE BROKER,
77, CORNHILL, LONDON.

Turkish Six Per Cents. of 1854, 1858, 1862, 1865, 1871, and 1873 specially recommended; Wheal Grenville and Treleigh Wood, also Wheal Pever and Crebres. Business transacted at the following rates of commission:—Foreign Stocks, 1/4 per cent.; and Mining Shares of £1 each and upwards, 1/4 per cent.; under £1, 1s. share.

FERDINAND R. KIRK, STOCK BROKER,
5, BIRCHIN LANE, E.C.
Consols, Foreign Bonds, Railways, and every security quoted on Change bought and sold.

Bankers: London and Westminster, and City Bank.

SPECIAL BUSINESS in the following:—
Earle's Shipbuilding, 25 New Sharlstone.
Bilson and Crump, Ebbw Vale, 25 Penruthal.
Bagnall, John, Blaenavon, 25 Sweetland.
Butler's Wharf, Bridgwater, 25 St. Patrick.
Brighton Aquarium, 25 Hudson's Bay.
Bristol and Swansea, 25 Silksdale.
Chapel House, 25 Malabar.
Central Swedish, 25 Thorp's Gawber.
City Offices, 25 Ladywell.
Diamond Rock, 25 Teoma.
Diamond Fuel, 25 West Chiverton.

I. W. WILLIAM WARD
(LATE WARD AND LITTLEWOOD),
CROSBY HOUSE,
95, BISHOPSGATE STREET WITHIN, E.C.,
STOCK AND SHARE BROKER.

JOHN MOSS AND CO., STOCK AND SHARE DEALERS,
224 AND 226, GRESHAM HOUSE, OLD BROAD STREET, LONDON,
C. transact Business for cash or account on all descriptions of Stocks and Shares.

Bankers: The London and County Bank, Lombard-street.

M. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C. (Established 18 Years),
will sell the following SHARES, at prices annexed:—
10 Alamillos, 2s. 60 Frontino, 6s. 3d.
10 Bampfylde, 26s. 6d. 25 Richmond, £2 18 9
15 Birdseye Creek, 22s. 6s. 20 Sweetland, 22s 6s.
20 Bog, 10s. 3d. 30 St. Patrick, 21s.
10 Chicago, 23s. 40 Last Chance, 19s. 6d.
15 Colorado, 23s. 50 Malabar, 13s. 9d.
10 Cleve Hill Col., 6s. 3d. 20 Teoma, 24s.
25 Devon Consols, £1 15s. 50 Malpaso, 14s. 6d.
10 Eberhardt, 24s. 1 40 The Gold, 2s.
50 East Van, 40s. 15 New Quebrada, 24s 9
40 Emma, £1 8s. 9d. 25 New Consols, 23s.
25 Flagstaff, 22s 12s. 30 Port Phillip, 13s. 3d.
W. M. can supply particulars of a Lead Mine, shares as yet but 2s. 6d. premium, likely to commence dividends within six months.

WILLIAM BARTLETT, STOCK AND SHARE DEALER,
FINSBURY SQUARE BUILDINGS, LONDON, E.C.
Business transacted in British, Colonial, and Foreign Securities, Railways, Banks, and Mining Shares at close net prices. The Sale or Purchase of Shares not quoted in the usual Stock and Share Lists may be negotiated.

Full particulars of a few Securities well worthy of immediate attention will be forwarded on application, free of charge.

G. E. SIMPSON, STOCK AND SHARE DEALER,
6, GREAT WINCHESTER STREET BUILDINGS, LONDON, E.C., will
sell the following SHARES, free of commission:—
100 Javali, 16s. 70 Javali, 16s. 3d.
50 Ladywell, £2 16s. 3d. 25 Richmond, £7 3s. 9d.
20 Roman Grav., £12 8s 9 25 Tarkerville, £10 12s 6d.
50 Lianrwst, £1 14s. 25 Tarkerville, £10 12s 6d.
20 Eberhardt, £2 18s. 15 Penrury, £2 11s.
25 Flagstaff, 22s. 40 Prince of Wales, 9s.
40 Gold Run, 16s. 6d. 20 Van Consols, 23s.
30 Parys Mountain, 12s. 3d. 50 W. Tunkerville, 24s.

SPECIAL BUSINESS in the Fire Re-Insurance Corporation (Limited).

P. WATSON, STOCK AND SHARE DEALER,
79, OLD BROAD STREET, LONDON.
Bankers: The Alliance Bank (Limited); and Union Bank of London.

M. ALFRED E. COOKE, STOCK AND SHARE DEALER,
76, OLD BROAD STREET, LONDON.
(Established 1853.)

SPECIAL BUSINESS in the following shares, which should be bought at once:—Thorp's Gawber, Chapel House, Glaisdale Quarry, St. Patrick.

All the above shares are fully paid. Full particulars may be had on application.

Mr. COOKE guarantees to supply the following shares, or any part, in consequence of the holidays, prices are not affixed to all the undermentioned shares, as fluctuations render it impossible to place shares under offer when the market is closed for many days. Mr. COOKE solicits applications by Tuesday morning:—

100 Almada, 2s 9 35 Glaisdale, 20s.
20 Bampfylde, 26s. 20 Hingston, 175 Positive Assur., 16s 9d.
20 Birdseye, 10 Itton Rhyn, 20 Penrury, £1 2s.
5 Bilson & Crump, £10 145 Javali, 140 Rockhope (offer wtd.)
75 Cakemore Colliery, £5 20 Ladywell, 20 Sweetland Creek.
30 Chapel House, £24. 50 Lianrwst, £2 12s. 6d.
10 Cedar Creek, 20 New Consols, 15 West Goginan, 30s.
100 Cremer, 4s. 3d. 150 Parys Mountain, 120 Welsh Gold.

Mr. COOKE is a Buyer of Chapel House, Glaisdale, Hingston Down, Javali, Welsh Gold, and Tunkerville at best market prices.

Business in 80 Tunkerville and 250 Javali.

Shares may be had for settlement at the end of May, subject to the payment of a deposit of 20 per cent.

References exchanged.

Prompt attention given to all letters and telegrams.

M. T. E. W. THOMAS, SWORN SHARE BROKER,
3, GREAT WINCHESTER STREET BUILDINGS, E.C.
Established 1857.

The following are the latest prices at which business could be done. Where the difference between the buying and selling price is wide transactions may be effected at an intermediate price:—

Buyers.	Sellers.
Bampfylde	1s 1/2s
Birdseye Creek	2s 1/2s
Bog	9s. 6d. 10s. 6d.
Carn Brea	47 48
Cedar Creek	1 1/2s 1 1/2s
Chicago	3 1/2s 3 1/2s
Chontales	8s. 9s.
Devon Great Consols	1 1/2s 1 1/2s
Dolcoath	46 47
Don Pedro	15s. 17s.
East Lovell	6 1/2s 7
Fast Van	2 2/3s 2 2/3s
Eberhardt	3 1/2s 4 1/2s
Flagstaff	2 1/2s 2 1/2s
Gawton	10s. 12s.
Gold Run	18s. 20s.
Hingston Down	7 1/2s 1 1/2s
Javali	15s. 16s.
Ladywell	2 1/2s 2 1/2s
Lianrwst	1 1/2s 1 1/2s
Marke Valley	17s. 6d. 18s. 6d.
New Consols	2 1/2s 3
Parys Mountain	11s. 3d. 12s.
Pennerley	13 1/2s 1 1/2s
Tankerville	10 1/2s 11
Tincoff	23 25
Tylwyd	7 1/2s 1 1/2s
United Mexican	2 1/2s 2 1/2s
Van	22 23
Van Consols	2 1/2s 2 1/2s
West Chiverton	4 1/2s 4 1/2s
West Maria	4s. 5s.
West Tunkerville	1 1/2s 1 1/2s
West Tolgs	44 46
Wheal Grenville	4 1/2s 5
Wh. Kitty (St. Agnes)	4 1/2s 4 1/2s
Wheal Pever	5 1/2s 5 1/2s

N.B.—Speculators in mines may anticipate a rise in the shares of the East Van.

M. E. CHARTERS, 36, NORTHUMBERLAND STREET,
CHARING CROSS, LONDON, can do BUSINESS in the FOLLOWING SHARES, free of commission:—

50 Almada, 15s. 50 Great West Van, 10s 9

25 Bampfylde, £1 1/2s. 30 Gold Run, 16s. 6d.

20 Birdseye, £1 1/2s. 20 Marke Valley, £1.

20 Bampfylde, £1 1/2s. 50 Trumpet Cons., 19s 6d.

20 Birdseye Creek, £2. 50 Malabar, 11s. 9d.

3 Carrs Brea, £4. 10 Medlyn Moor, £5 1/2.

10 Cardiff & Swan, £4. 50 New Fowey Con., 10s 6

10 Devon Consols, £1 1/2s. 30 New Sharlston, £3 1/2.

10 Emma, £1. 30 Old Talarogch, £2.

20 Eberhardt, 24s. 50 Plynlimmon, 3s. 6d.

20 Gawton, 10s. 6d. 50 Pennerley, £1 1/2.

20 Hingston Down, 7s. 6d. 50 Pedian-dre, £7.

20 Javali, 16s. 3d. 20 Wheal Creb, 15s. 6d.

20 Ladywell, 24s. 6d. 20 Wheal Creb, 15s. 6d.

20 Pennerley, £1 12s. 6d. 20 Wheal Creb, 15s. 6d.

20 Tylwyd, £2. 20 Wheal Creb, 15s. 6d.

20 United Mexican, 2 1/2s. 20 Wheal Creb, 15s. 6d.

20 Van Consols, 52s. 20 Wheal Creb, 15s. 6d.

20 Wheal Grenville, 19s. 6d. 20 Wheal Creb, 15s. 6d.

20 Wheal Pever, £5 1/2. 20 Wheal Creb, 15s. 6d.

20 Wheal Tylwyd, £5. 20 Wheal Creb, 15s. 6d.

20 Wh. Kitty, £5. 20 Wheal Creb, 15s. 6d.

20 West Basset, £5 1/2. 20 Wheal Creb, 15s. 6d.

20 West Tolgs, £2 1/2. 20 Wheal Creb, 15s. 6d.

20 Wheal Grenville, 19s. 6d. 20 Wheal Creb, 15s. 6d.

20 Wheal Pever, £5 1/2. 20 Wheal Creb, 15s. 6d.

20 Wheal Tylwyd, £5. 20 Wheal Creb, 15s. 6d.

20 Wh. Kitty, £5. 20 Wheal Creb, 15s. 6d.

20 West Basset, £5 1/2. 20 Wheal Creb, 15s. 6d.

MARCH 27, 1875.

327

THE NASCENT COPPER PROCESS.

The PROPRIETORS of this PATENT METHOD of TREATING LOW-CLASS SILVER and COPPER ORES are PREPARED to GRANT LICENSES for its USE at LOW ROYALTIES.

There is hardly a Mixed Metal mine in the world but may be made to pay dividends under this system.

All communications respecting the above should be addressed to—

MESSRS. EMMENS BROTHERS AND CO., 8, OLD JEWRY, LONDON, E.C.

Royal 8vo, 764 pp., cloth; with over 200 illustrations, drawn to scale, and reduced in many instances from working drawings. Price 34s.

ELEMENTS OF METALLURGY;

A PRACTICAL TREATISE ON THE ART OF EXTRACTING METALS FROM THEIR ORES.

By J. ARTHUR PHILLIPS, M. Inst. C.E., F.G.S., F.C.S., &c.,

Ancien Elève de l'Ecole des Mines, Paris.

"A work which is equally valuable to the Student as a Text-book, and to the practical Smelter as a Standard Work of Reference. * * * * The illustrations are admirable examples of wood engraving."—*Chemical News*.
"The author has treated with great skill the metallurgical operations relating to all the principal metals. The methods are described with surprising clearness and exactness. * * * * In our opinion the best work ever written on the subject with a view to its practical treatment."—*Westminster Review*.

London: CHARLES GRIFFIN AND COMPANY, 10 Stationers' Hall-court.

Lectures at the Royal School of Mines.

LECTURES ON MINERALOGY.—No. V.

The substance, said Prof. W. W. SMYTH, which is to form the object of this present lecture is one of the most important of all the constituents of our globe, entering more or less into the composition of the greater part of rock masses, and sometimes even composing the rocks. I mean QUARTZ. As a whole, the substances which we shall include under the term have been designated from a very early period by many different names, but as we find that all these kinds, while differing from the others in some respects, have yet a marked resemblance and agreement in others, we in modern times class them altogether as being of one species, but having many subdivisions, or varieties. If we examine into their chemical composition we find them to consist essentially of silica, which in itself is an oxide of a metalloid substance called silicon; sometimes pure, sometimes adulterated, so to speak, with other oxides—oxide of iron, oxide of alumina, &c. In the group called opals a very considerable quantity of water is combined with the silica, and this group differs from the others in several points; still it is classed with them, for you may pass from one to the other by very easy gradations. The crystalline forms in which this substance occurs belong to the hexagonal, or rhombohedral, system. Nearly 180 different forms have been observed, but the differences are so trifling that if we make ourselves familiar with two or three of the principal shapes it assumes we shall be practically prepared to recognise it in all cases.

In the outer hall of this Museum you will find a very fine specimen of crystallised quartz, taken from the lining of a lead vein in the North of England: on examining it you will see that the crystals projecting from the mass have faces of the six-sided pyramid, and if these crystals had been formed in a soft mass (e.g. in clay), under other favourable circumstances, we should have found both ends of the crystal developed, the lower corresponding to the upper, and we shall have a pyramid with 12 faces. Far more commonly, however (especially when it does not occur in masses of crystals filling the interior of cavities), part of the figure is a prism of six sides. A very curious and observable fact about these latter crystals, and one very convenient to those who have to do with the substance, is that the upper faces are lustrous and, generally speaking, smooth, the side faces show a number of fine lines, or striations, on their surfaces. Another point of great interest with regard to the crystalline varieties of this substance is that they have a tendency to occur with only half, or even a quarter, of the number of faces developed which we know belong to the full form; and thus we may find only three faces of the prism, or the whole number may be there, but alternately large and small. When only three faces are developed the crystal is looked on as a hemihedral form, and we may suppose in that case that we have three faces of the rhombohedron developed. In almost all cases the hardness is so considerable that it is greater than that of ordinary steel and iron, and the remembrance of this fact is most important in mining and quarrying operations: so considerable is the hardness that the only way to overcome it is to use a material of superior hardness, as the diamond, or to scrape it away bit by bit, or by taking advantage of its brittleness and clipping it away. Everyone is aware of the fact that you can strike a light with a piece of flint (which is really a form of quartz) and steel; this is on account of its great hardness, and particles which fly off being made red-hot by the blow. It is usual to apply the term "rock crystal" to the purer varieties of the substance; as a general rule you may say the larger the crystal the more you can trust to its purity throughout. This large crystal of quartz which I have on the table was brought for hundreds of miles through the woods and over the mountains of Brazil by an enthusiastic Cornish miner, who was under the impression that he had found the largest diamond in the world, whereas on bringing it to me it was only worth a very few shillings. The diamond, however, crystallises on a system which has the octahedron for its base, while quartz never, by any possibility, assumes such figures, it takes very regularly those forms which are its own, and which are easily and readily recognised.

Rock crystal, when it assumes different tints, receives special names; thus we have the "cairngorm" stone, which is nothing more than a yellowish brown variety of rock crystal, named after the Cairngorm mountain, in Scotland, where it is found, and it is brought from abroad. If it has a blackish, dark, smoky colour it is given the name "smoky quartz" is given to it, while if it has considerable brilliancy, and somewhat of the colour of the topaz, it is called the "topaz." In some cases it assumes a purple tint, and is then known as "methyst," and this substance is very largely imported into this country, from Brazil especially, and employed for ornamental purposes; in some specimens the purple colour may be seen fading away into a colourless portion. The name of "common quartz" will be given to those varieties which do not exhibit any particular kind of translucency. In the outer hall you will see a series of quartz from California, which forms one of the vein stones in which gold occurs.

One would not be far from the mark in saying that of all the substances which make up our globe, as far as we know, quartz is, perhaps, the most important, forming from 50 to 70 per cent. of the whole amount of materials, if we regard not only that which exists in the free state, but also that which occurs as a compound. In granite, for example, quartz occurs as one of the constituents, and the other two minerals which make up the granite—mica and felspar—are also quartz, that is containing quartz in combination. Here is a sketch of a lead mine; the walls, sloping down on either side, are formed of granite, while the fissure or vein in which the ore occurs is almost entirely filled up with quartz, and these conditions extend over areas of many miles. In fact, we may say that, with the exception of quartz in limestone, quartz is the principal veinstone in which metals occur; in many cases gold and silver ores occur in quartz rocks, they occur also in quartz material as veins, but in this latter case it is not quartz rock; quartz rock occurs in strata which may extend for many miles, but in the case of quartz occurring as the material of lodes and veins it has been introduced at a time subsequent to the formation of the rock in which lodes occur. Among the varieties of quartz we have "rose quartz" and "milky quartz," distinguished by their tints; and "cat's eye," a jem highly valued in the East. This latter is usually cut in a rounded form, called by jewellers "cabochon," and when in this form it is turned about you may see a peculiar line of light down the stone, more or less softened at the sides, but sometimes very sharp; and this reminds you of a cat's eye when fairly looked into, hence the name given to it.

"Aventurine" is a variety of quartz which when the light falls on it displays a large number of shining and brilliant points of light. "Fibrous quartz" is another variety, which occurs in some localities; the cat's eye variety is either fibrous in itself, or contains parallel bundles of some fibrous material, such as asbestos. "Ferruginous quartz," sometimes of a brownish red, at others of a brown colour, contains along with quartz one of the oxides of iron.

We now come to a group of materials which are not so distinctly crystalline as the above; they appear granular, and are called "crypto-crystalline," or obscurely crystalline. The granite of which many of our paving stones consist is made up, as I have mentioned, in great part by quartz free and combined; the sandstones, too, which are used for the streets you will find to be composed altogether of grains of quartz, sometimes with a little mica (which, again, is a silicate, and thus contains quartz), or a little argillaceous matter. And, again, you will find many of the conglomerates—as, for instance, the "plum pudding stone" of Derbyshire—are composed of pebbles of quartz cemented together. Among these obscurely crystalline varieties occurs "hornstone," having in general a brownish or whitish tint, with sparkling lustre, and frequently found replacing the material of organic bodies in fossils; another variety black, and found in slaty masses, is called "Lydian stone," and has been used for thousands of years by goldsmiths for comparing together different varieties of gold, and so testing different specimens by the colour of the streak left when the metal is rubbed on the stone. "Jasper" is another variety, without lustre, very hard, of a red or brown tint, called "ribbon jasper" when the colour is exhibited in streaks or layers, and "agate jasper" if other material is intermixed with it. Fine examples are not frequent in this country, but it is not unknown, being occasionally met with in parts of Wales and Cornwall, and in the latter place may sometimes be seen built into walls.

I must say a few words about the varieties of quartz which contain water in variable quantities; these form the group of "opals," which are subdivided, and receive various names. Everyone is more or less familiar with the beautiful colours, so noticeable for their brilliancy, and at the same time for their softness, of the precious or "noble opal," the occurrence of which is almost limited to one particular district in Hungary, but which has been found to a certain extent in America, and lately in Queensland, Australia, with iron ore. This substance has a less degree of hardness than the other varieties of quartz, as might be expected, and moreover none of the group are known to occur crystallised. Altogether they have a character which shows conclusively that they must have been carried by water in solution, and deposited therefrom, taking the form of the cavity or place in which they were deposited. "Common opal" is a substance of a whitish colour, with an agreeable tint about it, sometimes found associated with precious opal. "Hyalite" is a glassy substance, found in small drop-like masses as stalactites, occurring in cavities in igneous rocks and rocks of volcanic character. In the northern island of New Zealand are a number of certain springs of high temperature, the water of which contains a considerable proportion of silica, and this is deposited in the district as siliceous sinter, forming large masses, especially about the place where the springs issue: this is very interesting, as giving us some idea of the way in which the last-mentioned varieties of quartz have been formed. We have another instance of silica deposited from the water of hot springs in the case of the geysers of Iceland. In Hungary are seen masses of wood completely opalised, where the organic matter of trees has been entirely replaced by deposits of common opal. I have seen such cases there, and am completely persuaded that it must have been brought about by the action of water: in some cases so perfect is the replacement that you can see the annual ring of growth as distinctly as if the tree had been cut down only last week.

We have still a third group of quartz minerals, which are by universal consent attached to the quartz family, and which consist of an irregular mixture of the two preceding groups. These substances, from the comparative facility of cutting them, the variety of patterns they present, and the admirable way in which they allow of being engraved, have been from the time of the Etruscans regarded as of the highest value in the mineral kingdom. Among them we have "chalcedony" called from a town of Asia Minor, with a greyish or brownish tint; with a fine red tint it is termed "cornealian." If it assumes a dark brownish red tint it is of especial value to engravers, and has been used from ancient times for rings and seals; it is called "sard" from having been found originally in the neighbourhood of Sardis. Then there is the "onyx," where you have two layers of quartz mineral; one dark brown, the other white, or other colour. If "sard" occurs thus in an "onyx" the mass is called "sardonyx," these layers of mineral in the hands of the artist are very ingeniously and curiously worked up into figures. "Bloodstone" or "heliotrope" is a dark-green variety, with red spots in it; "chrysoprase" is another green variety. The great number of agates belong to this family, and in the Museum above you will find a series of specimens illustrating the manner in which this substance was formed by the infiltration of water.

NODULES IN SANDSTONE.—At the Manchester Geological Society Mr. Plant read a paper on the origin of some arenaceous nodules found in coal measure sandstones. Externally, he said, these nodules might suggest an origin like that of a ball of sand cemented by oxide of iron, but their external ridges were difficult to account for by any kind of rolling motion; and were the nodules to be regarded as having been produced by motion, their internal structure could not be reconciled with that theory. After carefully examining a large number he had come to regard them as the result of a slow decomposition or oxidation of stray particles of iron which originally existed in the sandstone, and which by that process became diffused in a series of gradually enlarging circles. The entire ball was saturated with peroxide of iron, but the process of saturation was not uniform; hence the appearance which the nodules exhibited of a succession of iron-stained rings. The last formed circle had, by its oxide, effected a hardness of surface which enabled the nodule readily to separate itself from the sandstone. He had experimented in various ways to obtain similar nodules from clay, lime, or sand, but the result had not been satisfactory, inasmuch as the oxidation of the iron required more time than he had given it to radiate in circles from a central nucleus. Some experiments upon dampened paper had been more successful, and in some which he exhibited it would be seen that a particle of iron, when placed upon dampened paper, and under slight pressure, had in eight days produced a series of iron-stained rings, which presented a *faux simulacrum* of the iron-stained concentric circles found in sections of nodules.

He submitted this as probably a correct explanation of the particular nodules appearing in the coal measure sandstones of Lancashire.

IRON AND STEEL INSTITUTE.—The annual meeting of members will be held in the hall of the Institution of Civil Engineers (by permission of the council thereof), Great George-street, Westminster, on Wednesday, May 5, and two following days, and particulars as to papers proposed to be read there should be forthwith forwarded to the general secretary, at Middlesbrough. From the circumstance that at the meetings of the Iron and Steel Institute all the leading members of the iron trade are present, there is probably no place where the merits or defects of any given invention brought under discussion can be more quickly ascertained; and, as the forthcoming meeting will be held in London, all who have any novelty for cheapening or improving the manufacture of iron would do well to avail themselves of the opportunity of submitting it, for which the constitution of the Institute affords every facility. Whilst referring to the Iron and Steel Institute, it may be mentioned that the second part of the 1874 volume of the "Journal" of the Institute has just been published, through Messrs. Spon, of Charing Cross. The part now issued contains the detailed report of the Barrow-in-Furness meeting, held in September last; the usual report, by Mr. D. Forbes, on the progress of the iron and steel industries in foreign countries; notes on the iron and steel industries of the United Kingdom; and an appendix, containing an account of the visits, &c., connected with the Barrow meeting.

THE TREATMENT OF COPPER ORES.

At the Great Snowden Mountain Copper Mining Company meeting, on Wednesday, Mr. J. P. WILKES read the following paper upon a new process which he has patented for the treatment of copper ores:

As requested, we have much pleasure in giving some particulars of the process for the extraction of copper from its ores, in which we are interested, and which we have already explained to some of the directors of the company. The process is a chemical one, but it is not a mere chemical theory, for it contains nothing but well-known reactions, which can be vouch'd for by every chemist. It was devised by an eminent mineralogical chemist, of very extensive and practical experience, who was consulted by a well-known Italian banking house with reference to some copper mines in the Alps, formerly the property of the late Count Cavour. He was desired, if possible, to discover some cheap method of extracting the copper from the ores with which the property abounded, but which were so poor in copper that he was informed that he could have no materials to work with but what he could find upon the mountain, or were contained in the ores themselves, they would not otherwise pay for treatment. The ores were very similar to those of the Snowden Mine, the bulk of which, as indeed is the case with by far the greater portion of the sulphuretted copper ores found in the United Kingdom, are too poor to be profitably dressed by water, owing to the extraordinary waste that accompanies all water processes, and the impossibility of extracting the whole of the copper by that method. His investigations, which were patiently continued for a considerable period, resulted in the erection of trial works: the various steps of the process were tested in every way, and having been practically demonstrated to be correct and commercially successful, the bankers referred to are now extending upwards of 10,000ft. in the erection of extensive works to carry on their operations; and the process is now protected by patent in the United Kingdom and the chief copper producing countries of the world.

Two of the leading objects of the process are—1. The conversion of the copper into a state of solution, and—2. The extraction or precipitation of the copper from that solution. The residues of the cupreous pyrites, now so largely imported into England from Spain and other countries, and which are comparatively concentrated by the elimination of the sulphur originally contained in the ores, are generally chloridised, or roasted, with chloride of sodium (common salt), in order to render the copper they contain soluble, and the copper is then precipitated from the solution by means of iron, which is sacrificed in the process. But chloridisation as now performed is too imperfect and wasteful, and the precipitation of copper by iron is far too costly to admit of the profitable treatment of low-class ores by such methods. In our process those ores which contain sufficient sulphur to support combustion are first employed to roast themselves; but as we at present consider that the bulk of Snowden ores will be treated by the second method of our process, it will not be necessary to explain the particulars of the treatment which applies best to the ores of that class. The Snowden ores would be first crushed and mixed with a small quantity of burnt lime, and made up into any convenient shape for roasting, as an ordinary brick-kiln would be stacked or built for burning; the mass or kiln of ore would then be burnt at a low red heat for a short time, which would require but little fuel to accomplish, and the roasted ores would then be crushed, and tipped into conveniently placed tanks or vats containing, when the process is started for the first time, water, but which after repeated use will become a highly concentrated acid liquor, containing a large proportion of sulphuric acid resulting from the burning of the ores with lime. By the roasting of the ores in this manner with lime the whole of the copper they contain will become converted from its original form of a sulphide or sulphuretted into a soluble sulphate of copper, a chemical combination of copper with sulphuric acid; and for the information of our chemical hearers, we may mention that any small portion of copper sulphide which may have become converted into a simple oxide by the strong acid liquor we have formed, as already stated, by our repeated washings of the various batches of roasted ores.

We have now to extract the copper from the solution; we, therefore, draw off the liquor into other tanks or vats, and pass it through sulphuric acid, which we can produce by another part of our process in any desired quantity from the materials supplied by the mine itself, at a most nominal cost. Upon the introduction of the sulphuretted hydrogen into the copper solution, the copper having greater affinity for the sulphur instantly combines with it, and is precipitated to the bottom of the tank as a highly concentrated and pure sulphide, containing 50 per cent. and upwards of copper; the hydrogen unites with the oxygen and forms water, and we liberate large quantities of sulphuric acid, and thus indirectly manufacture a most powerful solvent, the free use of which is of great benefit in our already simple and economical process. The copper precipitate, unlike the unfortunate ores containing only 4 and 6 per cent., commands its full price in the market according to the copper standard, and may be at once either smelted or converted into valuable salts of copper on the spot, or sold as it is. The quantity of lime required will depend the amount of sulphur which has to be absorbed from the ores, for the Snowden ores will probably average about 5 per cent. of lime to the ton of ore; and our sulphuretted hydrogen being made from the ores themselves, it will be seen that our operations possess the elements of simplicity and economy, while it may be mentioned that we shall in addition easily obtain a byproduct, formed during the treatment, which will go far towards covering our entire cost. We have in this process a most simple and economical method of extracting copper, and the treatment of copper ores will henceforth be reduced to a mere mathematical question.

For the treatment of the Snowden ores under this part of the process, which we call "the Lime Process," we require the following simple plant:—Kilns for burning lime, ordinary brickmaker's pug-mills and moulds, for shaping the prepared ore into any convenient form for roasting, a furnace and boiler for the production of sulphuretted hydrogen, vats or tanks for precipitation, sheds, tools, &c., and an ordinary stone-breaker and crushers, which are equally indispensable for the water process as for this. The commercial results of the treatment of the Snowden class of ore by the process will be best exemplified by saying that an ore yielding the extremely low percentage of 2 per cent. of copper will (after allowing the most ample margin for mining and getting off—say—10s. per ton of ore), result in a net profit of 30 per cent. and upwards, calculated upon the average standard of the copper market, while any additional richness in the ore treated will practically be almost all clear gain. The cost of the treatment of ordinary low-class copper ores after mining by our process may be taken to average from 10s. to 15s. per ton of ore, according to circumstances. With reference to the application of the process to the Snowden Mines, we think that a sum of about 3000*£*, which will allow a moderate working capital, will be sufficient to treat 30 tons of ore per day, the capacity, we understand, of the stone-breaker and crusher already in working order on the mines, and provide for the necessary contingent expenses, and we think it would be desirable for the company to turn their more immediate attention to the halvans, which, being already mined and available for use, will yield the above rate of profit, even supposing they only give a result of 1½ per cent. of copper, for it must not be forgotten that in view of this process there is, at that percentage of copper, a considerable value in them which may be immediately realised.

The erection of the necessary works will take but little time, and immediately upon their completion the Snowden Mines, with attention and economy, may realise large profits, sufficient to satisfy the most sanguine shareholders, if the company is placed upon a sound basis and its capital reduced; while owing to the extensive character of the mines these profits may be still further increased, according to the amount of capital invested in the erection of additional works. We think it may be safely assumed that, with the appliances already upon the mines, and the working capital now asked for, and before said, good and careful management, the treatment of 30 tons per day of ore (yielding about 2 per cent.), or of halvans (yielding about 1½ per cent. of copper), would result in a net profit of about 60*£* per week, or about 3000*£* per annum; and if we can arrange to work for a day of 24, instead of 10 or 12 hours, as could no doubt be done, this amount of profit would be doubled; while it must still be borne in mind that with additional plant 100 tons per day can be treated as successfully as 30 tons. We are now making the necessary arrangements for the application of the process, on a large scale, in the working of some extensive copper mines in this country in which we are interested, knowing that in this age of criticism we shall accomplish more to secure the adoption of the process throughout the kingdom by practically demonstrating its truths and success ourselves, and then court the investigation of the mining and chemical interests, than by all the theoretical proof and argument we could bring to bear upon the subject, and until this was accomplished it was not our intention to bring the process into public notice. Actuated, however, by a sincere wish to aid our fellow-shareholders in the Great Snowden Company in their difficulties, we have willingly done so, and trust that it is not too late for the existing company to apply it to their mines. We sincerely hope that the property, and the opportunity of more than retrieving all its ill fortune, will not be lost, for though at the eleventh hour, we think that it is not too late for the mines to realise the prosperity and the shareholders the benefits they deserve. Assuming, of course, that the opinions of Prof. Etheridge and others, as expressed in their reports upon the property, prove to be correct.

WAGES IN THE FINISHED IRON TRADE.—On Tuesday there was a meeting of representative ironmasters from the different ironmaking districts in England, at the Westminster Palace Hotel, to consider the notice of the Northern ironmasters to terminate, at the close of June, their connection with the board who from time to time determine the wages of finished ironworkers according to the Derby scale. The meeting was private, but it was understood that there was not so much objection by some masters in the meeting to the principle as to the figure basis, and it is believed that there are ironmasters who would not object to continue the method if a different basis for regulating wages by priors could be fixed. Nothing of a more definite character was, however, determined upon than that a meeting of the parties to the Derby arrangement should be summoned to meet six weeks hence.

The Master of the Rolls has appointed Mr. T. S. Evans, of Bucklebury, official liquidator of the Grovehead Steam Coal Company (Limited), and of the Cwm Bychan Silver-Lead Mining Company (Limited).

MARCH 27, 1855.

Meetings of Public Companies.

THE SILKSTONE FALL COLLIERY COMPANY.

EXTRAORDINARY DISCLOSURES.

The annual meeting, which was looked forward to with a great deal of interest by the shareholders and others, was held at Barnsley, on March 19. There was a good attendance, and the chair was occupied by Mr. J. W. BAKER, the Chairman of the company, Mr. Kimber, solicitor, London, having withdrawn his candidature for a seat at the board, of which he had given notice at the last meeting.

The CHAIRMAN, in moving the adoption of the report, which showed that there had been a loss on the year's transactions of upwards of £2400, traced the history of the colliery for many years past, showing that in purchasing it the company had been most grossly deceived. He said at the last annual meeting the directors were empowered to raise additional capital for the purpose of developing and carrying on the wagon works, but they found it impossible to do so. All they could do under the circumstances was to work up the materials in hand, and then sell the wagon works. The directors were also authorised to enter actions against Mr. E. Booth, the vendor of the colliery, and Mr. Nicholson, the promoter of the company, for the false representations with respect to the colliery. They had done so, and the result was that the Court of Chancery had attached 822 shares standing in the books of the company in the names of those two persons, pending the issue of the trial, which was for the recovery of 2400 shares, or the money received for the sale of any portion of them, as well as any dividends received. Financially, he found that for one year there were bills of exchange received for £3400, 7s. 7d.; owing to banks, £622, 18s. 9d.; trade accounts, £740, 6s. 11d.; other bills expected at Christmas, 1000/-—making a total of £16,672, 13s. 1d., against 14000/- owing to the colliery. After considerable difficulty and anxiety, however, they had been able to reduce their liabilities very considerably; still he was sorry to find that he was compelled to admit the colliery was thoroughly rotten, and of no intrinsic value whatever. During the first five months of last year the colliery made a small profit, but during the remainder there was a considerable loss, and the manager, Mr. Nixon, said the coal was so rubbishy it was impossible to make a profit out of it. Such was also the opinion of Messrs. Higson, the well-known mining engineer of Manchester, who had been called in to inspect the colliery, and report as to its capabilities. They state that, according to the plans submitted to them, there remained unworked in both mines about 750,000 tons of coal, which at the present rate of output would last about ten years; but, as one seam would be exhausted long before that period, the production would diminish. They also stated that, in consequence of the seams being so interstratified with layers of dirt and stone, great expense would be incurred in separating them after the coal had been mined. They conclude by stating "we are of opinion that the cost of getting these seams at the present time leaves so small a margin of profit that in ordinary times, with the increased expense that must naturally follow, would preclude any possibility of their being worked to a successful issue."

It would, therefore, be clear to the most sanguine shareholders that it was impossible to work the colliery at a profit. With regard to the early history of the colliery, he found that in 1858 it was worked by Mr. G. W. Craik, in connection with another person, after which Mr. Booth purchased a quarter share. It was continued by them until 1861, when Mr. Craik sold his share to Messrs. W. and S. Adshead, one of whom was father-in-law to Mr. Booth. The latter, in 1862, borrowed £3000, from his father-in-law, or sold his share for that sum. All the Adsheads put into the colliery was not more than 3000. Mr. Craik's first partner having sold out, the colliery became invested in the Adshead family, when the property was put down at 25,000/-, of which 11-25ths was in the name of W. Adshead, 11-26ths S. Adshead, and the remaining 3 25ths Thos. Adshead, who was connected with one of the others in some dye works at Macclesfield. After that it was attempted to float the concern as a company, with a capital of 100,000/-, Mr. W. Adshead being the chairman, and Messrs. Booth, and a young man named James Adshead, being the managers. Of the purchase-money, it was proposed that the sum of £40,000 should be taken in fully paid-up shares, and 16,000/- in cash: 10 per cent. was to be guaranteed to the shareholders for five years—the concern being in an insolvent state at the time. In 1869 Mr. W. Adshead died, and a suit was instituted to administer to his estate. Mr. Booth then agreed, with the sanction of the Court of Chancery, to purchase the colliery for 18,000/-, and in 1871 the concern was brought out as a limited company, with a capital of 50,000/-, in consequence, as it was stated, of the death of one of the partners. But, as Mr. Booth appeared to have no money to pay for his purchase, having before borrowed £3000. from his father-in-law (deceased), he made overtures to Mr. Nicholson, the salesman at the colliery, and it was arranged that the latter should buy the colliery for 30,000. Nicholson then applied to Messrs. Silk and Co., of London, to float the concern, and to induce them to do so transferred to them 435 shares. Messrs. Silk, however, did not do so. Previous to the attempts to form the company the colliery, which was the property of the Adsheads, was in a thoroughly insolvent state, for he found that there was owing to the bankers on its account, in 1866, £3217.; 1847, 3371.; 1868, 4129.; 1870, 4411.; 1871, 3894.; and in 1872, 3750. It was, therefore, evident that from the very commencement the colliery was a losing concern. Mr. Booth it appeared was manager from 1866 to 1871, with a salary commanding at 25/- a month; and in 1870 Mr. Nicholson became salesman to the colliery, it being agreed that he should have 6d. per ton for all coal he sold in certain districts. In July, 1871, an agreement was entered into between Booth and Nicholson for the sale of the colliery for 30,000. After paying the Adshead family 18,000/-, it was agreed upon, there was 12,00/- left, of which Booth was to have 5000/-, and Nicholson 7000. Of the shares 40 were given to Mr. Neville, of the Coal Exchange, and others, to qualify them as directors.

Mr. OWEN (London), the late Chairman, said all the directors were qualified by the vendors.

The CHAIRMAN proceeded to say that Silk and Co. were either unable to float the company or gave it up in disgust. Application was then made to West and Co., of the Exchange—that was the Hop Exchange, in Southwark. Shortly after that shares were issued declaring a dividend of 25 per cent. on the paid up capital. The share then went up like magic, and the effect was truly wonderful.

A SHAREHOLDER: The 25 per cent. dividend cleared me out.

The CHAIRMAN: Yet it was plain that the accounts had been cooked, for the concern had never made a sixpence from the beginning. It could not be otherwise, for in the purchase the plant and buildings were put down as worth £24,700/-; but he had no hesitation in saying they were not worth as many hundreds as were charged thousands.

The 15,581/- was put down as the assumed value of the leases. The Messrs. Adshead had a glebe lease granted to them, which was assumed to be of the value of 5000/-, yet an ounce of coal had never been got under it, and 5317, 13s. 1d. had been paid on account of it to the Ecclesiastical Commissioners—the value assumed they would see was mere moonshine. His own opinion under the circumstances was that they should take the bull by the horns, and write off four-fifths of the capital, which he would propose as a resolution. When he found it to be impossible to work the colliery at a profit, it occurred to him that there was a valuable bed of fire-clay, which could be worked at a profit by the erection of brick works, and the coal required could be obtained by working the Thorncliffe seam. Considerable loss he found had been incurred by the wagon works—which had been an incubus on the concern—for the expenditure on them looked as if it had been reckless, for in one instance from 200 to 300 tons of the very worst iron had been purchased for the highest price given for the best qualities. What he would now recommend was that the capital should be reduced from 50,000/- to 10,000/-, shut up the rubbishy pit known as the Silkstone Fall Four-feet, utilise the 20 in. of fire-clay and the Thorncliffe coal with it which is connected. They then might pay a fair dividend on the 10,000/- If they did not do as he had intimated, then the best course they could adopt would be to wind the company up. There was a large quantity of the Thorncliffe coal, something like 98,000 tons, which, if worked at the rate of 250 tons a week, would last a considerable time for the purpose of converting the fire-clay into bricks. In conclusion, he would say that the whole fabric on which the company was based was as rotten as any company that was ever brought out. He had given a great deal of time and deep attention to the affairs of the company, and in the end it was exceedingly annoying to find that the whole concern was rotten to the very core. (Cheers.)

Mr. WHITEHEAD said many of them had been allured by the 25 per cent. dividend bait; but he found that there had been a good deal of cooking to make things agree. On examining the stock-book he found eighteen items that had not been ticked off by the accountant, and they showed how the 25 per cent. dividend was made to appear. When it was necessary the stocks had been altered at the instance of the manager to make the value appear much higher than it was. There were 2868 props put down at 2s. 6d. each, their actual value being 10d. each, or an overcharge of 23%; 570 bars at 5s. 6d. each, cost or value 1s. 9s. each, overcharge 40%; 17s. 6d.; 18 bars at 9s. each, value 3s. 2d. each, overcharge 52%; 10s.; 12,154 props at 1s. 6d. each, real value 9d. each, overcharge 70%; 180 props at 2s. each, cost 1s. each, overcharge 9%; 9000 bars at 4s. each, overcharge 138%; 10s. There were, consequently, overcharges on the stock in hand to the amount of about 2500/- for the purpose of showing a dividend of 25 per cent. on the capital then supposed to be subscribed. The speaker then spoke in strong terms of the report of Messrs. Grace and Archer, the mining engineers, which was printed along with the prospectus, and, in fact, formed part of it. They stated that the Silkstone Four-feet seam, which is the fourth bed, is 4 ft. in thickness, including a dirt parting of 6 in., when the coal was only 2 ft. 10 in.

Mr. R. COOPER presumed that Mr. Neville alluded to the London coal trade. When the weather was very severe in the metropolis, and vessels were kept back by contrary winds, coal went up, but the same cause in no way affected the country markets.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. R. COOPER presumed that Mr. Neville alluded to the London coal trade. When the weather was very severe in the metropolis, and vessels were kept back by contrary winds, coal went up, but the same cause in no way affected the country markets.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. R. COOPER presumed that Mr. Neville alluded to the London coal trade. When the weather was very severe in the metropolis, and vessels were kept back by contrary winds, coal went up, but the same cause in no way affected the country markets.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. R. COOPER presumed that Mr. Neville alluded to the London coal trade. When the weather was very severe in the metropolis, and vessels were kept back by contrary winds, coal went up, but the same cause in no way affected the country markets.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

The CHAIRMAN remarked that the amount of wages paid bore no comparison to what the coal sold for. For the last seven months of 1874 there had been a falling off in the coal trade, with a decline in price. He also considered that the Thorncliffe bed could be worked to a profit.

Mr. CULPAN was connected with some works that used 500 tons of engine coal weekly, and if they had what was called the Four-feet bed of Silkstone Fall for nothing they would not have it.

200/- of his own money, although he had since sold all his shares but one, and that he held merely for the purpose of vindicating his character.—The CHAIRMAN believed that Mr. Owen had acted in good faith, and from information furnished by Mr. Booth.

Mr. NEVILLE said he was in the same position as Mr. Owen, for it was owing to his reliance in Mr. Booth that he became connected with the colliery.

Mr. ROBINSON was opposed to the closing of the Four feet pit, as he believed there were two coal merchants who would purchase the produce of it. He had also heard that Mr. Booth had offered to take the colliery off their hands, and pay them 7½ per cent. for it.

The CHAIRMAN said the merchants alluded to might work the seam by paying a small royalty. With regard to Mr. Booth, if that gentleman would do as was said, and give them guarantees, the directors would receive him with open arms.

Mr. R. COOPER was not prepared to place any reliance on the promises of Mr. Booth. He thought that the Legislature should endeavour to put down the system of vendors giving gentlemen shares in a company to qualify them for directors.

Mr. KIMBER (London) remarked that he had heard of Mr. Booth offering a com-

promise in the Chancery suit, and, as a solicitor, he advised them to entertain it, otherwise it might turn out they were throwing good money after bad, or after none at all. He had been induced by Mr. Nicholson to invest money in the company, and if he thought he had a chance of getting anything from him he would certainly try, but he believed it would be useless to do so.—The CHAIRMAN said he was of something like the same opinion, and if anything like a satisfactory settlement was offered he should advise the directors to accept it.

Mr. OWEN asked if it would not be advisable to call upon Messrs. Grace and Archer to justify their report.

The report and accounts were then put to the meeting, and carried.

With regard to the reduction of the capital, the question was deferred, and it was agreed that the office in London should be abolished.

A rather warm discussion ensued, in which some personalities were interchanged by Mr. Minshall, the secretary, and Mr. Kimber, who appear to have been rivals for the position.

Mr. Dawson, the book-keeper at the colliery, was appointed secretary. The directors were re-elected, and a vote of thanks passed to the Chairman.

The CHAIRMAN, acknowledging the vote, said he was not over sanguine as to the result of their changed position, but the dividend on a capital of 50,000/- would, of course, be very small.

The proceedings, which lasted upwards of four hours, then terminated.

WEST GOGINAN SILVER-LEAD MINING COMPANY.

An extraordinary general meeting of shareholders was held at the offices of the company, on Thursday

good demand. South Frances, called 7 to 9. Tincroft shares have been moderately dealt in at 22½ to 23½, and close firm. Trumpet Consols, offered at about 20s. West Bassett shares have advanced from 5½ to 6, 6½. West Seton, quiet, 10 to 12; it is said that the 19s. per ton coals are doing here quite as much duty on 1 ton per day less than the old stock on 1 ton more. West Tolgas shares have declined to 42, 44 from 46, 48, and shares close rather flat. Wheal Jane, quiet, 4 to 4½. Wheal Pevor, 5 to 5½; the arrangement at the meeting to sell one of the relinquished shares to the holder of 15 at 3½ is a nice thing for the large holders. Wheal Unity, 2½ to 3, steady. Kitty (St. Agnes), 4½ to 5. Wheal Bassett shares have dropped to 6—2500. only for the mine. West Frances shares have advanced to 9½, 10½; we are informed there are about 15 applications for the situation of agent. —West Briton.

LEAD MINES IN THE UNITED KINGDOM.

Although Cornwall is the mining district *par excellence* of the United Kingdom, it must not be forgotten that other portions of these islands are richer in some metals than the British peninsula, of old and unrivaled fame. Cornwall possesses lead mines, but in this metal one of our English midland counties (Shropshire) is undoubtedly richer, and the Welsh county contiguous to it (Cardiganshire) is probably the richest lead-bearing district in the world. The Isle of Man has gained a great reputation for its silver-lead mines, and large fortunes have been acquired at various periods of its history by the Great Laxey and others. In Ireland, according to Sir R. Kane, there is lead in every province. It lies in the womb of the gales and the comers, and sleeps almost unheeded in the Far West at the foot of Croah Patrick.

The celebrity of South Wales for its silver-lead mines is very great, some of them containing 80 ozs. of silver to the ton, many more 20, 40, and 60 ozs. to the ton of ore. There is lead in Monmouth, Merioneth, Montgomery, and Flint, to what extent is not yet ascertained; but the deposits are rich, and capital and skill will eventually pursue them where geological science invites the investigation. It is not generally known that no form of enterprise is more certain than mining. Ground is not broken up at random now, or by the supposed guidance of the divining-rod, or because there are ascertained mines in the vicinity. Geological science is so advanced and accurate that the presence of metals below can always, or nearly so, be detected by indications in the rock above. It is also a fact not generally known, and when stated is far from receiving a ready credence, that mining is the most remunerative of all industrial enterprises. Lead mines in Wales have been very profitable. Take, for example, Cardiganshire. Cwmystwith, with a capital of 76800, paid 47,000, in dividends. The Lisburne Mine, with a capital of 75000, paid 222,600. Goginan, with a capital of only 5000, paid 80,000.; and East Darren, with a capital of 96000, paid 64,050. "From a few learn all." There is no fear of drawing what logicians call "an imperfect induction," although there is not space to set forth a vast crowd of cases. Going more into detail, we observe that Montgomeryshire affords a splendid field for profitable lead mining. The Great Van Lead Mine has poured treasures into the lap of its projectors and shareholders. Van Consols is another prize. The champion lode, which passes through those sets, is uncommonly rich in metal. Merionethshire has not yet received the attention that is due to it; there are, however, some well-known deposits of great value. The late Capt. Francis frequently affirmed that lead mining would hereafter be one of the great industrials of Monmouth.

Of all the mines in South Wales "the Van" is the most valuable. It is probably the greatest lead mine in the world in area, and the most prolific as to production per fathom. It is not as yet much known that North Wales furnishes a considerable field for lead and silver-lead mining, but the truth of its richness in this respect is now opening up with sufficient distinctness and lucidity to invite the attention of intelligent investors and enterprising miners. The county of Carnarvon, the capital county of the province, exemplifies these remarks. The geological formation resembles that of portions of the opposite island of Mona, in which lead saturated with silver so much abounds. The celebrated Nant-y-Mwyn Mine opened up extraordinary courses of lead ore; on some occasions a body of lead 12 ft. in thickness was brought to light, rewarding the confidence and spirit of the adventurers most richly, yielding dividends such as cannot be obtained from commercial undertakings. At present there is another property in Carnarvonshire which courts attention—the Llanrwst Lead Mine, which is situated near that last named. The discoveries have been of importance, immense bodies of lead having been opened up.

The lead mining districts in Ireland have been well explored, but the area of work is very circumscribed, owing to the limited acquaintance with mining and working in metals which exist in Ireland, and the timidity with which English investors approach any Irish commercial enterprise, from the unsettled state of the popular mind on political subjects of a dangerous nature. The Wicklow Mine, near Bray, after various fluctuations of fortune and some difficulties, is likely to prove remunerative. The Tipperary silver mines are in reality lead mines, bearing a remarkably high proportion of silver, and are worked at a considerable profit. In Ireland, however, lead mines, as in the case of iron mines, are neglected where the greatness of resources in metal must be obvious, not only to every geologist and mineralogist, but to every observing person having any practical acquaintance with these metals.

In recent number of the Journal we showed what the commerce of lead is in 1875 during the two months of the year which had then elapsed, but, although the subject had a present and immediate importance, two months is too short a time to give a complete view of our commerce in any department. The Board of Trade gives a revised review of the years, and that for 1872 has only just been printed.

It appears that the lead imported during last year was of the value of million and a half, representing about 63,000 tons (round numbers), against 100,000, less in value in 1873, and 2000 tons less in quantity in that year. Of these imports there is no record that we sent away a single pound weight, or a single pound's worth, for the two years any more than we have since this year commenced. We have, however, exported British and Irish lead to the value of \$35,000.—not far from 100,000, more in value than our export of the metal in 1873. The quantities were less than 36,000 tons last year, and 32,000 tons in the former.

Our main object in the introduction of those figures is to show the fact that while the lead-bearing area of the United Kingdom is vast, and we are exporting more—at all events last year than the year that preceded it—we are also importing more. This is not accounted for by diversity of quality, as in the case of tin, which as a rule requires Cornish tin to be worked up with it. Why, then, do we not produce all we require for ourselves, and still be exporters? The reasons are not far to find. Only a small portion of the area is worked, and a smaller portion still with an adequate spirit and capital. The machinery and *modus operandi* of most of our lead mines in Ireland, what there are in Cornwall, and in Cardiganshire along the Plymmon range, are very inferior, and, as a rule, lead mines are not worked to a sufficient depth. For these statements there is the authority of the most experienced of present and recent lead miners. Let capitalists, therefore, look to the imports and exports for the two years last past, and then consider the area in the United Kingdom over which lead is mined, and under which it is not mined, but awaits the work of the enterprising, and they will probably awake to the prospect which this wide field for the employment of capital opens up.

NEW WHITE ALLOY.—Mr. L. V. LENIAU, of Place de la Bourse, Paris, merchant, has patented an improved white metallic alloy, which is composed of copper, nickel, bismuth, zinc, malleable iron, and tin.

PICKLING AND COATING IRON PLATES.—Mr. P. W. FLOWER, of Melyn Tin Plate Works, Neath, manufacturer, has patented an invention which relates to improvements in pickling iron plates, and in coating them with tin or other metal, and consists in packing the sheets to be operated upon in racks or grates, so constructed that while the sheets pack very close to each other they cannot come into actual contact, and that when plunged mechanically into a regulated succession of baths, the contents of each bath will act equally upon every part of each plate.

SELF-OPERATING AND SELF-SUSTAINING MOTIVE-POWER.—Mr. G. BUCHMULLER, of San Francisco, has patented an improved motive-power, which is self-acting and self-sustaining. This improved motive power consists of a wheel, which is mounted in a suitable framework, and entirely submerged under water. This wheel is provided with air-tight expandable and contractile buckets, constructed similar to a bellows body, so that they may be inflated with air, or the air expelled and the bucket collapsed, as required to produce the de-

sired result. Suitable mechanism is provided for opening and closing, and inflating and exhausting the buckets at the proper points of the wheel's revolution to preserve a greater rotative power upon one side of the wheel than upon the other, so that the tendency of the inflated buckets to rise to the surface of the water will cause the wheel to rotate, and keep it in motion.

FOREIGN MINING AND METALLURGY.

The depression which has for some time characterised the Belgian iron trade prevails without any change. Almost everywhere the managers of works are under the necessity of restricting the manufacture and blowing-out furnaces; they are also compelled in some cases to resort to the painful alternative of dismissing their work-people. Unless matters promptly improve, several establishments will be obliged to close for a time. The orders which arrive present little importance, and they are only given out to meet the urgent requirements of consumption. The Centre Rolling Mill at La Louviere has just completed the establishment of a differential train for plates on the Lauth and Derby system. The preliminary experiments which have been made have proved perfectly successful. With the help of its new appliances, the Centre Works could, if need be, turn out from 20 to 25 tons of plates every 24 hours. Unfortunately, however, employment just now fails the Centre Works as well as other establishments.

The current of affairs in the French iron trade, although of no great extent, exhibits a slight progress, and suffices to afford employment to the works. The revival in affairs, which usually takes place at this period of the year, has not yet occurred, but the causes which have retarded it hitherto, and which were in great part occasioned by the aspect of political affairs, no longer exist; there is then, ground for hoping that the improvement which has been so much wished for will not be further delayed. Although important contracts make default, some small sales of iron are noticed. Pig for refining has been in no great demand; as regards pig for second fusion, it has given rise to only insignificant transactions. The improvement which has been noticed recently in the iron trade at Paris still continues. The weather has been favourable for building operations, and orders for the foundries may shortly change the aspect of the market. M. Moysant has just obtained from the French Minister of Marine a contract for a large quantity of iron required for French Government buildings in New Caledonia; M. Moysant has undertaken to supply this iron at 12 per ton. Iron is maintained with firmness at St. Dizier and in the Champagne group. Rolled iron is now worth 10. 8s. per ton; axles have been sold readily at 10. 14s. per ton. In the Loire and Rhône districts the iron markets have left something to be desired; first-class merchants' iron has given way to 9. 4s. per ton. In the Meurthe-et-Moselle rough pig for refining is quoted at 37. 0s. 10d. per ton; rolled iron is quoted at 8. 13s. 8d. per ton at the works. The Saint Brieuc Forges and Steelworks Company is to be dissolved. The Marseilles Gas and Blast Furnaces Company (which also works the Portes and Sénénas) will pay on the 1st prox. an interim dividend of 11s. 3d. per share.

It is difficult to discover the slightest change in the general aspect of the French coal markets. Transactions are generally quiet, and they are limited to the urgent requirements of consumption. The struggle as to future prices between buyers and sellers still continues, and it is rather to be hoped that the buyers may emerge victorious from this long combat, since coal is still too high in the general interests of industry. When one sees, for example, coal selling in the basin of the Loire at an average of 12s. 10d. per ton for inferior qualities, and 11. 1s. 8d. per ton for superior qualities, it must be confessed that there is still some room for lower rates. Coke for metallurgical purposes, which is selling in the Loire at 17. 1s. 8d. per ton, is also still too dear for metallurgy. If prices were reduced 2s. to 2s. 6d. per ton, forgemasters might then work upon favourable conditions, and produce at remunerative rates. Consumption for domestic purposes is diminishing every day, but the requirements of the small forges, the brick-yards, and the lime furnaces are increasing little by little. At the same time, whatever amount of coal may be absorbed by the various works it is not likely to bring about any advance in coal quotations. In consequence of the increase in its coal traffic, the Anzin and Somain Railway Company is about to give extra accommodation by adding to the number of its tracks. The Lille and Bethune Railway Company has applied to the French Government for the concession, without a subvention or guarantee of interest, of a line commencing at Bethune and passing via Fouquerolles, Marles, Ferfay, Auchy-au-Bois, and Fléchinelle. The Vendin, Bruay, Marles, Ferfay, Auchy, and Upper Lys Collieries would be accommodated by this means, and would be united to the network of the North-Eastern of France, the Lille and Bethune, and the Lille and Valenciennes lines.

The Belgian coal trade remains without any great variation, but a slight tendency downwards has appeared in the Charleroi basin, considerable stocks of some descriptions having accumulated at certain collieries, while metallurgical industry is in a very stagnant condition, and the glass trade is also in a by no means brilliant state. The Belgian working colliers are beginning to think of leaving the collieries for their summer employment of brickmaking, so that it is probable that the extraction will be greatly diminished during the next few weeks. It does not appear probable, however, that this migration will very greatly change or influence the general situation. It is remarked that beetroot sugar manufacturers do not press very much for the renewal of contracts for the approaching season; they hope, no doubt, by waiting a little to be able to do business upon more favourable conditions. Perhaps they are not wrong. Transactions in coal are generally only concluded for short periods, and the coal trade remains without animation, upon the whole.

Some two years ago the German Government sent out two engineers to America with a view of stimulating the export trade of silver ore to Germany. The stimulus which this movement has given to the trade may be best gathered from the fact that whereas the imports of American silver *via* Hamburg were valued at 60,000, and 62,000, for the respective years of 1872 and 1873, these figures rose to 800,000, for the past year, Chili supplying one half this value. These supplies are mostly worked up in Freiberg and the Klausthal. A Swiss paper reports the discovery at Weizikon of what is believed to be the most ancient evidence yet known of the existence of man. It consists in a kind of network of pointed fir poles covered with wicker-work. The slate coal in which it has been found belongs to the period intervening between the two glacial epochs.

EMMA MINING COMPANY.—The hearing of the petition for winding-up was concluded on Wednesday, when, after the views of the petitioner, the old directors, the present directors, and other shareholders had been expressed (the petition being supported by 275 shares, and opposed by 21,000 shares), Vice-Chancellor Malins in giving judgment said it was his opinion then, as it was when Mr. Cotton opened the petition, that the best thing for all parties would be to make a compulsory winding-up order, so as to make an end of the business. Still, it might be that the mine, though it had so far disappointed the expectations of the shareholders, might possibly turn out to be a source of wealth. There was very strong evidence undoubtedly that the mine was exhausted; that it was exhausted before it was sold to this company; and, in fact, that the whole thing was a concocted plan by which certain Americans obtained money from people in this country under false pretences. There was evidence, on the other hand, that miners were in the mine, and that 12,000 worth of ore was obtained last year; and there seemed to be some doubt whether by going on something might not be made of the property. If he made an order to wind-up the company compulsorily he should be cutting off what hopes there were, and acting against the wishes of an overwhelming majority of the shareholders. If the only object for which the company existed were to carry on litigation against the vendors of the mine, that duty could be as well discharged by the directors as by an official liquidator, who could only file a bill in the name of the company. It was well established that a fully paid-up shareholder could sustain a petition to wind-up, but under such circumstances the Court ought to be well satisfied whether any benefit was likely to arise from the order; and it was a puzzle to understand why a man who had lost already 2500.

in the company should desire, when there was so little prospect of getting anything back, a winding-up order, which would probably involve him in a further loss of 1000. He felt that he should not be right in making an immediate order in opposition to the wishes of the large majority of the shareholders, but he proposed to give them an opportunity of deliberately expressing their views at a meeting presided over by some competent firm man appointed by the Court. The petition would stand over to enable the meeting to be held, and the result reported to the Court, the transfer books being closed in the meantime.

CREVER AND WHEAL ABRAHAM.—The petition of Messrs. Harvey and Co., of Hayle, for winding-up this company, was heard before the Vice-Warden of the Stannaries, at the Law Institution, Chancery-lane, on Wednesday, Mr. Lawrence, instructed by Messrs. Hodge, Hockin, and Marrack, of Truro, representing Messrs. Harvey, and Mr. Westlake, Q.C., instructed by Mr. Oakes, appearing on behalf of the company. Mr. Lawrence explained that this was a winding-up petition by the largest creditors, Messrs. Harvey and Co., and that it was filed on March 10. On March 19 the petitioners received a letter from Mr. Geo. H. Cardozo, the secretary of the company, repeating telegram previously received, asking whether the petitioners would take a mortgage of the mine for 12 months at 6 per cent., with the guarantee of six shareholders, including the Chairman of the company, indemnifying them against possible loss. On the same day Messrs. Harvey telegraphed that the proposition was acceptable, and that they would meet the directors on Tuesday to arrange details. The terms had been since arranged, and Mr. Whitford, the solicitor to Messrs. Harvey, had had the draft prepared, and was present. Under these circumstances he was willing that the petition should stand over with a view to the arrangement being completed. Mr. Westlake agreed to this, and suggested that it should stand over for three weeks. Mr. Lawrence considered one week ample time for the completion, remarking that Messrs. Harvey were supplying the mine with materials at the rate of about 200 per week. The Vice-Warden suggested that they should split the difference. Mr. Oakes feared that, owing to the absence of some of the guarantors from town, it would be impossible to complete in a fortnight. Mr. Marrack thought His Honor's suggestion a very reasonable one. The Vice-Warden said that the order would be that the petition stand over for a fortnight. His Honor did not see that if they completed the arrangement they need meet again for the formal dismissal of the petition, and would, therefore, word the order accordingly.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

CROWN COLLIERY COMPANY (Limited).—Capital 30,000, in 51 shares. To acquire the right, title, and interest of William Jones and Charles Ambrose Wilkes in certain minerals under lands known as the Crown Collieries, situated at Warmley, Gloucestershire. The subscribers (who take one share each) are—W. Booth, 52, Carey-street, Lincoln's Inn, accountant; Archibald Douglas, 71, Carlton Hill, W., of no occupation; W. H. Robert, 15, Coleman-street, solicitor; C. E. Goldring, 19, Upper Parkfield, Putney, solicitor; Archibald Davis, Burton-crescent, N.W.; and W. Shipman, 3, Bucklersbury, commission agent. The directors are to hold shares to the value of 250, and they are to be remunerated at the rate of 100 per annum until a dividend of 10 per cent. is paid, when they are to receive a further sum of 100 each.

THE WOLLASTON COLLIERY COMPANY (Limited).—Capital 105,000, in 100 shares. To carry into effect an agreement made between David New, James Oldknow, Alfred James New, and James Reckitt of the one part, and Richard Birkin, John Wills Leavers, and Samuel Morley, as trustees for the company, of the other part, for the acquisition of a mineral estate known as the Wollaston Colliery, near Nottingham. The subscribers are—Richard Birkin, Ashley Hall, Radford, esquire, 110; J. W. Leavers, Castle Grove, Nottingham Park, Nottingham, merchant, 110; Samuel Morley, Aldermaston Hall, near Derby, esquire, 110; A. J. New, Easthorpe, Nottingham, lace manufacturer, 1; J. Oldknow, 18, Villa-road, Nottingham, lace manufacturer; and J. Reckitt, Mentone House, Hesle, near Hull, merchant. The directors will be Messrs. R. Birkin, J. W. Leavers, S. Morley, A. Jackson, J. New, D. New, J. Oldknow, and J. Reckitt, the qualification being 25 shares. The company's office will be at Wollaston, Nottingham.

ST. HELENS WATERWORKS COMPANY (Limited).—Capital 30,000, in 102 shares. To establish waterworks at St. Helens, Jersey. The subscribers (who take one share each) are—T. W. Hardinge, 58, Brompton-road; T. W. Masterman, Spencer Hill, Wimbledon; A. P. Calland, 42, Maida Vale; E. R. Bredger, 37, King William-street; W. Crofts, 25, Old-square; W. E. Chambers, 45, Guildford-street; and W. H. Jones, Hercules Buildings, Lambeth.

HENRY LIVESEY (Limited).—Capital 25,000, in 51 shares. To take over the business of Mr. Henry Livesey, of Blackburn, iron-founder, &c. The subscribers (who reside at Blackburn) are—G. Parkinson, 100; T. Abbot, 100; W. Livesey, 1200; J. Watson, 100; T. Collinson H. Abbott, 10; J. Boothman, 20; W. Stephens, 10; and E. Knowles, 50.

PATENT MACHINERY COMPANY (Limited).—Capital 30,000, in 52 shares. To acquire a patent invention of Mr. G. E. Throope for smut and separating grain machinery. The subscribers (who take one share each) are—J. S. Pierce, C.E., 21, John-street, Adelphi; J. W. Throope, Castle and Falcon Hotel; W. B. Newton, Richmond Vale, Liverpool; H. C. Soden, St. James Villa, Surbiton; J. Andrew, Ironmonger-lane; G. W. Appleton, Spring Grove, Isleworth; and H. Heard, 40, Tavistock-road, W.

GOOLE AND HULL STEAM PACKET COMPANY (Limited).—Capital 6406, in 100 shares. To convey passengers and goods between Goole and Hull.

ASHTON-UNDER-LYNE ESTATE AND BUILDING COMPANY (Limited).—Capital 25,000, in 51 shares.

OXON IRON ORE AND NATIVE OCHRE COMPANY (Limited).—Capital 12,000, in 51 shares. To acquire mineral lands, buildings, &c., at Wheatley, Oxford, and carry on business as iron miners and smelters, &c. The first seven subscribers (who take one share each) are—W. J. Sennett, Wheatley, engineer; Robert How, All Hallows Chambers, Lombard-street, mining engineer; W. Willis, Camden-road, N.W., accountant; J. Argall, Towcester, Northamptonshire, mining engineer; J. H. Sennett, Wheatley, mining engineer; E. How, Luton, Beds, coal merchant; J. How, Luton, coal merchant. The purchase of the property has been effected for 1200 fully paid-up shares. The first directors will be Messrs. Robert How, W. J. Sennett, and John Argall.

COLNE VALLEY GAS COMPANY (Limited).—Capital 20,000, in 51 shares. To establish gasworks at Longwood, Golcar, and Lintwaite, Yorkshire. The subscribers (who take 20 shares each) are—W. Shaw, Longwood; S. Brook, Milnbridge; E. T. Sykes, Edgerton; A. Dyson, Egerton; T. Culverly, Sulindine Moor, near Huddersfield; and G. Dyson, Milnbridge.

SENIOR AND BROOKS (Limited).—Capital 20,000, in 51 shares. To manufacture oils and soaps in Lancashire.

ANSLEY PAPER MILL COMPANY (Limited).—Capital 15,000, in 51 shares. To carry on business as paper manufacturer at Ansley.

BULLO PILL AND FOREST OF DEAN WAGON COMPANY (Limited).—Capital 50,000, in 207 shares. To acquire the Bullo Pill Wagon Works, at Newnham, Gloucestershire. The subscribers (who take one share each) are—W. Roberts, Bridgend; W. H. Roberts, Golborne-road; W. Clements, 2, Beaufort Buildings, Gloucester; W. C. Evans, Clyde Villa, Gloucester; W. Stafford, The Park, Gloucester; L. A. Smart, Gloucester; and J. R. Smart, Gloucester.

STAR PAPER MILL COMPANY (Limited).—Capital 60,000, in 51 shares. To acquire the papermill near Penicuol, Lancashire, the property of the Riddlesworth Paper Mill

Mining Correspondence.

BRITISH MINES.

ABERDAUNANT.—S. Joy, March 24: Setting Report: No. 4 to stope above the No. 3 adit level by five men, at 5/- per cubic fathom for the month; the lode is worth 14/- per cubic fathom for lead. No. 1 adit to drive east by four men. I have set them to drive 10 fathoms certain, at 4/- 10s. per fathom. The lode has further improved in the last week, and is now worth 7/- per fathom for lead. This is an important point, and I am anxious to go on east with all possible dispatch, in order to probe the section of ground between this end and the No. 4 stope, where I hope to find good lead ground, and increase our stope.

BELSTONE.—James Nell, March 20: Shaft A: The sinking is being pushed forward with all possible speed by a full pane of nine men. The influx of water in the shaft has materially lessened; the ground in shaft is more favourable and highly mineralised, with occasional stones of arsenical mundic spotted with yellow ore. —C Shaft: The stope from rise in back of intermediate level east is without alteration. The stope from cross-cut north of rise in back of intermediate level, on small cross-course, is more promising, producing good nests of black and yellow copper ore.

BLUNHILLS.—S. Bennetts, A. Gripe, March 20: The south part of the Pink lode, in the 50 fm. level west, is worth 6/- per fathom. In the 40 fm. level west the lode is some 2 ft. wide, but being near both gossan and cross-course is unsettled, and not very valuable. We have just commenced to open out on this part of the lode in the 50, some distance to the west, where we hope to lay open some more tribute ground. The tribute pitches have, on the whole, somewhat improved during the past month.

BOG.—W. T. Harris, J. Barkell, March 23: The 175 has been set to drive west, on the Whitestone lode, by four men, at 8/- per fathom; the lode is still twiched, but there is every appearance of opening out into open and profitable ground again shortly. The 175, on main lode, has been set to drive west, by six men, at 4/- per fathom; and east, on the south lode, by six men, at 5/- per fathom; each end is laying open profitable ground. The 163, driving west, on the Whitestone lode, is still hard, and slow of progress; but we believe there is a part of the lode on the lying side of the level, and have put the men to drive a cross-cut in that direction to prove it. The 163 is set to drive west, on main lode, at 4/- per fathom; the end is opening out some profitable tribute ground. The 148 has been cleared up to the forebear, on the main lode, which is many fathoms in advance of the 163, all in profitable tribute ground, principally for blonde. And the lode in the winze recently commenced in the sole of the level to hole to the 163 for ventilation is yielding lead and blonde per fathom; price for sinking, 6/- per fathom. The 100 end, east from Buntin's shaft, is improving for progress and in appearance, and we think we shall shortly get through the hard tie of ground and into a productive lode; set to drive by four men, at 10/- per fathom. The 50 is set to drive east from Buntin's shaft, by four men, at 7/- per fathom, and is improving for mineral and progress as we advance.—Tribute Department: We have set 20 pitches on tribute, varying from 6/- per ton for lead and 25s. per ton for blonde, to 8/- per ton for lead and 40s. per ton for blonde. The weather is now fine for surface operations, and we have a full force of men cutting foundation, raising stone, &c., for the building for the new drawing-engine, which will be erected with as little delay as possible.

BURROW AND BUTSON.—J. Christopher, J. Mayne, St. Agnes, March 23: At the 82, going east, our cross-cut south is not through the horse of killas yet to see the south limb of the lode on which we are to suspend operations for the present if no immediate improvement takes place. In the end of the 50 west the lode is very strong, composed of quartz, with spots of copper and mundic. The 50 is set to drive east from Tonkin's shaft, a little more than 100 fm. from the 30, west of Tonkin's, continues worth 4 tons of blonde per fathom. In the rise in the back of this level the men are up 4½ fms., and it continues worth 1 ton of blonde, with 2 to 3 cwt. of lead per fathom. The stope in the bottom of the 20, west of Tonkin's shaft, is still worth 4 tons per fathom. The end west of Tonkin's shaft, on the main lode, is worth for blonde about 1½ ton. There are stones of lead with all the blonde in the stope and ends around this part of the mine.

—William's Shaft—Western Mine: The end on the middle lode at the 20 is worth about 1 ton of blonde per fathom, strongly mixed with copper. By the cross-cut which we are driving south we have intersected a winze sunk on the lode from the 10 to the 20, and are now clearing out the stuff for ventilation from the upper or 10. At the 10 we are driving with all force on the middle lode to get to the intersection of the main lode, which we are looking for daily; this end is now worth for blonde and copper 3 tons per fathom. We have between 40 and 50 tons of blonde on the floors ready for next sale. We are dressing lead ore by means of the old jiggers, now connected with our 25-in. cylinder-engine, and blonde by means of the new jiggers, as it would not be well to crush both lead and blonde at the same time.

CRENTHIN AND WHEAL ABRAHAM.—W. Thomas, March 24: Sturt's engine-shaft: In the 228 fm. level, driving west, the lode is 1 ft. wide, yielding stones of copper ore. In the winze sinking below the 213 fm. level, west of shaft, the lode is 2½ ft. wide, producing 2½ tons of copper ore per fathom.—St. George's shaft: In the 215 fm. level, driving west, the lode is 3 ft. wide, and will yield 1 ton of copper ore per fathom. In the 203 fm. level, driving east, on the south lode, the lode is 2 ft. wide, producing 2 tons of copper ore per fathom; this end has improved further in value and appearance during the past week, and looks likely to still to notice.—Woolf's shaft: In the 220 fm. level, driving east, the lode is 5 ft. wide, yielding 5 tons of copper ore per fathom.

CWMYSTWITH.—March 20: In Michell's level, east on the new lode, the lode is still 3 ft. wide, worth 1 ton of lead ore per fathom. In Michell's level, west on the new lode, the lode is 2 ft. wide, showing spots of ore, but not sufficient to value. In Michell's level, west on the south lode, the lode is 1 ft. wide, producing saving work. No alteration worthy of remark in either of the cross-cuts since last reported on. The water is now in fork, and two of the pitches which were under water on the last setting day have been set, consequently all our tributaries are in the regular way of working and getting fair wages. All our machinery is in good repair, and working well. We sampled 10 tons of lead ore on Tuesday last, and are pushing on with the dressing as fast as possible.

DE BROKE.—T. Hodge and Son, March 23: Wilson's shaft is going in a good-looking country, where we are frequently meeting with strong fissures in the rock, and at times find good rich strings of lead at the joints. At Daniel's winze, west of cross-cut, the lode is 2 ft. wide, composed of quartz, and pebbles, and will now be commenced in a strong gossan lode, producing at times fine lumps of lead ore. We have good prospects here. Stope east of No. 2 shaft, in the bottom of the adit, is worth 15/- per fathom. Stope in back of the 25 fm. level, west of the rise, is improved, now worth 1½ per fathom. Everything is going on regularly, and our prospects for a good mine downwards will never more encouraging than now.

DENBIGHSHIRE CONSOLIDATED.—J. Pryor, March 24: In the 112 west the ground is harder that it was; this may be accounted for by the fact that we are drawing near the footwall of Parry's lode, and I might add that it is my opinion we shall find the lode better defined and more productive when the junction is reached. We are going to dial every point to tomorrow, so that I can tell you exactly the distance we have to go with this level. There is no change in the eastern part of the mine, the back of the level still producing about the same quantity of ore as previously reported.—Pitwork: One of the door-pieces burst Tuesday afternoon; it was all replaced, and the engine working by 4 o'clock on Wednesday morning.

EARL CARADON.—James Kellow, Thomas Trelease, March 26: Caunter Lode: In the 130 east the lode is large, intersected with mundic and spots of ore. In the winze sinking below the 115 the lode is 1½ ft. wide, composed of quartz, mundic and pebbles, intersected with spots of ore. The lode in the midway east is worth 8/- per fathom.—Marke's Lode: In the 72 east the lode is 2 ft. wide, composed of quartz, pebbles, and mundic. In the 60 east the lode is 2 ft. wide, composed of quartz and gossan, intersected with a little ore. The ground in the different cross-cuts is favourable, and good progress is being made.

EARL CHIVERTON.—R. Southey, March 23: Since my last the lode in the east end at the 64 is 3 ft. wide, and producing spots of lead, a very kindly appearance. In the north cross-cut at the same level the men are making good progress in driving towards the caunter lode. This being a very important point for the future well-being of the mine every effort is used to accomplish this object as at early a date as possible, the water falling off considerably since my last.

EARL WHEAL BASSET.—R. Pryor and Son, E. Adams, March 24: The driving of the 50 cross-cuts north and south are being pushed on with all possible speed, and the ground at each point is more favourably for driving. We have not as yet cleared the 14, east of south shaft, to the present end, but from the appearance of the level we consider that we cannot be far from it. Other places throughout the mine are without any material change to notice since our last report.

EARL WHEAL GRENVILLE.—E. Hosking, W. Bennetts, March 20: The mine is looking much the same as last reported.

EAST WHEAL GRENVILLE.—E. Hosking, Wm. Bennetts, March 24: The lode in the 130, west of engine-shaft, is 18 in. wide, and worth 6/- per fathom. The stope above the 130, west of engine-shaft, is worth 4/- per fathom. There is no change in either the 120 or 110 cross-cuts. The lode in the 110, east of cross-course, looks very promising, and is worth 6/- per fathom. The stope above the 110, west of rise, is worth 7/- per fathom.

EAST WHEAL LOVELL.—R. Quantrell, March 24: I do not see any change to notice since the meeting. The mine throughout is looking quite as well as reported.

FURZE HILL.—W. Dodge, March 24: There is nothing new to report on the No. 1 north lode; good progress is being made in the mid-way level, east of Bell shaft.—Middle Lode: In the 54 east, which is now being driven by six men, the ground is favourable for driving; price per fathom, 2/- 7s. 6d.; the lode in the last 6 ft. has been small, about 8 in. wide, its composition chiefly capel and spar, in terminated with a little tin—sawing work, which we hope will improve as we advance eastward. The stope in the back of this level is worth 12/- per fathom, price for stope 35s. In the 40 east the lode is 12 in. wide, but at present unproductive; the end shortly, as we shall soon be under the shoot of the tin seen below the 20. The stope in the back of the 40 worth 10/- per fathom; stope at 22s. 6d. We have commenced catching another parcel of tin, which will be ready for market at the usual time; computed 4½ tons; this at the present low price will more than meet the cost.

GLASGOW CARADON CONSOLS.—William Taylor, W. J. Taylor, March 22: There is no further change of importance in the 78 east; we are pushing it on as fast as possible. In the 78 west we have holed the rise to the middle level, making good ventilation, and have resumed the driving west, where the ground is very favourable, and the lode when last taken down worth 12/- per fathom. The middle level west is worth 8/- per fathom. The middle level east is worth 15/- per fathom. We have cut a branch in the cross-cut south at this level, which we have commenced opening on, producing some good ore; we shall see more of it in a few days. The 65 east, on south part, is worth 12/- per fathom. The 65 west is worth 12/- per fm. These two ends are to meet, and, when holed, will ventilate to enable us to sink the eastern winze on this level, where we have a course of ore. The western winze is worth 12/- per fathom. No other change in the ends. The stope and pitches throughout the mine are still looking well, and we hope to get an increased quantity of ore for the next month's sale.

GOGINAN AND LEVEL NEWYDD.—March 22: During the past month Bryn Pies shaft has only been sunk 9 ft., in consequence of the water being in through the very severe weather, however sinking is now going on regularly by nine men, and air progress is being made. The rise over the 100, against the same shaft, has been carried up 8½ ft.; progress here has been very slow, on account of being full of stuff, and then dead. The western shaft has been deepened and secured 4 fms. 1 ft., and it is completed to the 100; the men are engaged fixing ladder-road, &c., in the same. The cutting of ground for turbine

and the straightening of the 60 is being proceeded with as fast as possible. The tribute pitches in the old part of the mines continue to produce from 12 to 15 cwt. of ore per fathom. The weather is now fine and open for all surface operations, and everything is being pushed on vigorously. We intend sampling another parcel of silver-lead ore on Tuesday, the 30th inst.

GORSEDD AND MERLLYN.—W. Edwards, March 24: There is not much change to notice since my last, but our operations, I am pleased to say, show an improvement.—Merlyn Pit: This has been completed, and the men able to get down to a depth of 45 yards; but of course we shall have to go much deeper to prove the vein. In the driving of the adit west the ground is becoming more mineralised, and there is an increase of water from the forepart. There is also an improvement in the driving east from Gorsedd, the ground being more mineralised, and the upper part of the level looking as if the vein would break up through the roof, which it has not done for some distance. The quarry continues much the same as last reported, and on the whole our prospects are most chearful.

GREAT RAKE (Brassington).—W. Fearn, March 20: I am glad to say we are getting on well with our work of caulk; to all appearance it is plentiful, and shall have a large quantity for sale, and for which there is great demand.

GREAT RETALLACK.—John Harris, March 20: The leader part of the lode in the stope above the 40 east is not quite so large as it has been (now about 2½ ft. wide), which is yielding good work for blonde, being worth from 4 to 5 tons of ore per fathom.

GREAT SNAEFELL.—H. James, March 15: The lode in the 25 stope is worth 10 cwt. of lead and 1 ton of blonde per fathom. In the 74 end we have come to a nipp in the lode; the ground is hard but favourable, and I hope this level will open out an improved ore-bearing lode when we have driven through this temporary interruption. The lode in the stope from this level is about 2 ft. wide, and yields some good steel ore and blonde. The lode in the 85 forebreast is 5 ft. wide, and slightly intermixed with lead and blonde; and in the sump sinking below this level it is still larger. In this sump we occasionally meet with small loughs, which yield good stones of lead and blonde mixed, with very favourable quartz. We are still sinking on a part of lode towards the hanging side. In the 100 end north good progress is being made with the driving, although the lode is very hard; we have crossed it for 6 ft., but have not yet reached the hanging wall; though hard, it is intermixed with a little lead and blonde. The driving is being continued on the side of lode. The shaft is now the necessary depth for the lode, which we are preparing for by cutting out the necessary ground.

GREAT STONE.—J. Gifford, J. Pryor, March 22: We have not taken down any lode in the 77 since last report, nor in the 66 fm. level, but hope to do so in a few days.

RHELDOL.—J. Ridge, March 20: We have cut through another part of the lode in the cross-cut this week at the 30, but judging from the appearance of the end, which is letting out more water than we have yet seen in the lode, the main part is still before us; we have now driven in the lode 13 ft., which distance should have cut the middle or main part had it continued on the same undulations as in the 20. The lode in the 20 is 17 ft. wide, between the north and south walls; the middle part must have dipped more to south part, which accounts for our not yet cutting the lode. I shall at once write you on our intersecting it, which I am daily expecting to do. The character of the lode is much stronger at this level than at the 20. The lode in the 100 is 17 ft. wide, between the north and south walls, and shall cut in skipway next week.

ROMAN GRAVELS.—A. Waters, March 24: The 95 north is worth 52/- per fm. The same level south is worth 60/- per fathom. The stope in back of this level is in value from 30/- to 100/- per fathom. The 80, north of old shaft cross-cut, is getting into a strong ore lode; we expect an improvement of importance here shortly. The 80, south of Corfield's, is going forward in a very strong lode, which will be proved to full width by next reporting day, and value ascertained. The stope in this level vary from 30/- to 80/- per fathom. The 65 end, south of Stokes' winzes, is in a wide lode, worth 65/- per fathom. The stope here, three in number, are worth 60/- per fathom each.

SOUTH CARN BREA.—W. Rich, J. Knotwell, March 24: The lode in the 164 end, west of engine-shaft, is not quite so easy for driving; it is now chiefly composed of fluor-spar and spots of copper, and has a most promising appearance. The 164 end east carries a little tin. The lode in the sink below the 150 east is worth 33/- per fathom. The stope in the back of this level, west of winze, is worth 25/- per fathom. We sampled last week about 33 tons of copper ore.

SOUTH CONDURROW.—Wm. Rich, March 24: There is very little alteration cross-cut, and the shaft is now in the back of the 30.

SOUTH GREAT WORK.—S. J. Reed, March 24: The 95 north is worth 52/- per fm. The same level south is worth 60/- per fathom. The stope in back of this level is in value from 30/- to 100/- per fathom. The 80, north of old shaft cross-cut, is getting into a strong ore lode; we expect an improvement of importance here shortly. The 80, south of Corfield's, is going forward in a very strong lode, which will be proved to full width by next reporting day, and value ascertained. The stope in this level vary from 30/- to 80/- per fathom. The 65 end, south of Stokes' winzes, is in a wide lode, worth 65/- per fathom. The stope here, three in number, are worth 60/- per fathom each.

SOUTH GREAT WORK.—S. J. Reed, March 24: We have had a gradual improvement in the lode, driving east from the flat-rod shaft, in the 105; it is fully 2 ft. wide, and worth 8/- to 10/- per fathom. A lode worth 12/- to 15/- per fathom was driven over in the 35 for several fathoms in length, and only a small distance in advance of the 45 end. In the 35 west the lode is worth 13/- per fathom, and judging from the result of the sample just taken from this end it has further improved since last reported. There is scarcely any doubt now but that we have entered the same run of tin ground passed through in the level over, and which continued for several fathoms in extent. In the 20 west, on Great Work lode, we are driving south to prove a part of the lode which went off some 4 fathoms behind the end. There are already small seams of tin seen mixed with the killas. The stope pitches continue to look well.

SOUTH ROMAN GRAVELS.—J. W. Powning, March 24: Shelfield: Since the water has been out of the mine the shaftmen have been under the necessity of timbering the shaft to bottom, which they have completed, and are again sinking with all speed. The lode in the cross-cut has not been cut through, but so far as seen looks exceedingly encouraging for our next or 30 fm. level, which I calculate to reach in a month or six weeks. I have suspended driving the 20 east for the present, and have put the men at the stope in the 10 east, which is now worth 20/- cwt. per fathom.

SOUTH TOLCARNE.—Joseph Vivian and Son, James Paul, March 24: In sinking the engine-shaft below the 30, by six men, at 14/- per fathom, the ground is easy, and the lode increasing in size, being now 3½ ft. wide, composed principally of iron and quartz, with spots of copper ore and yellow mundic. In the 30, east of engine-shaft, the lode is in two parts, composed of quartz and flookan, carrying a little black copper ore. In the 30, west of engine-shaft, the lode is 3 ft. wide, composed of quartz, chlorite, iron, and mundic. In the 30 cross-cut, north of the 60 end, driving west, is worth 10/- per fathom. The 80, south of engine-shaft, is in a well defined lode. To drive the same level south by six men, at 4/- 10s. per fathom; lode 3 ft. 6 in. wide, composed of friable spar, flookan, spots of blonde, and mundic—a very promising lode. To drive the 60 north by six men, at 3/- per fathom; lode 2 ft. wide, but unproductive. The cross-cut has just passed through the 60 end, driving west, by six men, at 3/- per fathom; lode 2 ft. 6 in. in 6 ft., but seeing the ground east of this lode is very well leads us to think the main part of the lode may be still standing in that direction. We sampled on Saturday a parcel of lead ore computed 10½ tons.

SOUTH WARD.—R. Goldsworthy, March 24: Saturday, the 20th instant, being our pay and setting, the following bargain were let:—To drive the 90 cross-cut east by six men, at 6/- 10s. per fathom. To drive the 72 north by two men, at 3/- per fathom; lode 5 ft. wide, composed of blonde, carbonate of lime, and mundic—a well defined lode. To drive the same level south by six men, at 4/- 10s. per fathom; lode 3 ft. 6 in. wide, composed of friable spar, flookan, spots of blonde, and mundic—a very promising lode. To drive the 60 north by six men, at 3/- per fathom; lode 2 ft. wide, but unproductive. The cross-cut has just passed through the 60 end, driving west, by six men, at 3/- per fathom; lode 2 ft. 6 in. in 6 ft., but seeing the ground east of this lode is very well leads us to think the main part of the lode may be still standing in that direction. We sampled on Saturday a parcel of lead ore computed 10½ tons.

ST. JUST AMALGAMATED.—R. Pryor and Son, Wm. Bawden, T. Richards, March 23: Since our last report we are pleased to say that the lode in the 120, west of Savel's engine-shaft, has very much improved in value, and is worth about 20/- per fathom. This is important and essential to the future of the mine, since it not only shows that the good tin ground driven through in the level above (110) is continuing in depth, but also it is becoming longer or more extensive. This comprises the only change throughout the various points of operation in the mine. Saturday next being out to pay and setting day, a full report shall be forwarded

ders for the same will be received to morrow, when the result will be duly forwarded to the company's office.

WEST GODOLPHIN.—John Pope, March 23: I beg to inform you that there is no change in the mine worthy of remark since my last report. I will forward full report in time for the committee meeting, also state what I propose setting next month.

WEST GREAT WORK.—Samuel J. Reed, March 23: The ground at Duke's shaft, which is being sunk on the course of No. 2 lode, is now more settled and compact, and I may say of an improved nature for sinking. The lode continues to open out with some good specimens of rich tin, and identical with the large returns made from it some 50 fms. from the present point of operation. I certainly think we shall have a valuable discovery before we reach the next level, a further depth of about 10 fms. The samples taken from the great north lode contain a good percentage of tin.

WEST MILFWR.—W. Francis, — Holway, March 24: We have just cut into what appears to be a branch of the main lode in driving south from West Meadow shaft. It contains a little clay, mixed with spar, so far as seen, which promises well, but it is too early to report particularly. I hope we shall have something to value when the run is intersected.

WEST TANKERVILLE.—A. Waters, March 25: There is nothing new here to write about since my last full report was sent you. Everything is being pushed as far as possible. We shall to-morrow send out samples of 20 tons of lead and 20 tons of tin, for sale on April 1.

WEST WHEAL TOLGUS.—March 20: Since writing our report to you on Wednesday, we have been throwing back very much by the breaking of the balance box to the 40 fm. level at Taylor's shaft. Since the breaking of the box, we have had the men clearing out the pit, and we find the beam is good and sufficiently strong to put a new box on, which is being prepared with all possible dispatch. The water is being sent back at the 65 fm. level to Richards' shaft; it was up to the 105 fm. level, and last evening, when we left the mine, it was nearly down to the back of the 115 fm. level out to the shaft, and working very well. There is nothing new in the ends or stops to notice since we wrote on Wednesday. The rise from the back of the 85 fm. level has been noted, and the wise men are preparing to stop the two pairs of stoppers in the 125 fm. level to work whilst they are hindered with the water in the upper levels, one pair to stop the back of the 105 fm. level in the ore recently driven through, and the other pair to stop east from the No. 2 winze in the bottom of the 85 fm. level.

WEST WHEAL TOLGUS.—March 24: The 40 fm. level balance-box is fixed, and to-night it will be filled, and we hope to connect it to-morrow. The water is all in fork, and all hands are working to bottom. There is no alteration in the 125 fm. end; there has not been much done in the lode since we wrote last. We shall now begin to drive in the lode again, which we think is improving. The lode in the 115 fm. is small and poor. The lode in the 105 fm. is nearly 1/4 wide, with a little mud and ore, and ground easier. The lode in the 95 fm. is not so wide as it has been; it is hardly 2 ft. wide, with very little ore. This is very remarkable, seeing the lode about 6 ft. out (in the rise) is worth from 3 to 4 tons of ore per fathom. The stop east of the rise, a little up from the back of the level, is yielding some good work; a good lode, 20 fm. wide. No. 3 winze, in the 85 fm. is a little better; 10 ft. wide, ore, yielding from 2 to 3 tons of ore per fathom. The lode in the 85 fm. end is still poor. The lode in the 75 fm. end is still distorted and poor. The stopes throughout the mine are just the same as reported last setting day, holding on very well. Richards' shaftmen are again in the bottom of the shaft, and we hope they will continue sinking until they reach the 75. The ground is good. The lode is standing to the north side. Most of the pitches are looking very well. The engines are working very well, and the pitwork appears to be quite safe, and we are glad to say the water is lessening.

WHEAL GREENVILLE.—H. Hosking, W. Bennetts, March 20: The lode in the new shaft sinking below the 100 fm. is worth 25¢ per fathom, and we hope to see more of it against the meeting. All other parts are looking just as last reported.

WHEAL UNY.—William Rich, Matthew Rogers, Wm. Rich, jun., March 24: Hind's engine-shaft is sunk 3 fms. below the 130; we intend soon to put in bearers and cistern, and fix pitwork from this level to the 80; when this work is accomplished we purpose setting Hind's engine to work, which will greatly relieve the present pumping engine. The lode in the 40 end, west of incline shaft, is worth 10¢ per fathom. The stop in the back of this level is worth 12¢ per fathom. We have hoisted the winze below the 30 to the stop referred to, which has given good ventilation, and will facilitate stoping operations. The 100 end, east of King's shaft, is worth 6¢ per fathom. A stop in back of this level is worth 8¢ per fathom. The 110 end, east of King's, is worth 7¢ per fathom. The 120 end east is worth 10¢ per fathom. Three stopes in back of this shaft are worth 7¢, 12¢, and 15¢ per fathom respectively. The rise in back of the 120, west of incline, is worth 6¢ per fathom. A stop east of this rise is worth 8¢ per fathom. The 130 end, east of King's, is worth 7¢ per fathom. Two stopes in back of this level are worth 15¢ per fathom in the aggregate. We are cross-cutting through the lode in the 130 end west; the lode is large, but unproductive. The 140 west yields stones of tin. A stop in the back of this level is worth 8¢ per fathom. The 140 end, east of King's, is worth 10¢ per fathom. A stop in back of this level is worth 8¢ per fathom. The 150 end, east of Gooding's, is letting out more water, and we hope to have an improvement here very soon. We have sunk the incline shaft from the 140 to the 150, and made a communication between these levels; there is a good lode in bottom of the 140 west, which we hope to intersect in driving the 150 west. The 160 end, west of engine-shaft, is worth 5¢ per fathom. The 160 end east is worth 8¢ per fathom. Two stopes in back of this level are worth 8¢, and 10¢ per fathom respectively. We are keeping on a good amount of tutwork in opening out the levels in this mine, as well as forcing on the sinking of Hind's engine-shaft. The underground prospects are looking very encouraging, but the continued low price of tin is against us.

WILLOUGHBY.—H. Nottingham, March 24: New lode: The 23 fm. level, driving south, is looking very kindly and producing very nice lumps of ore, and ground easier for driving. The rise going up in back of this level is worth 1 1/2 cwt. of lead in south end, and rather poor in the north end. By the appearance of the ground we have opened up here now, I think this course of ore will make best to the south of the rise. The stop in back of the 23 north is yielding from 12 to 15 cwt. of lead and 1 ton of tin to a fathom. The drift going south, midway between the 13 and 23, to meet the rise, is in rather hard poor ground, the same as we have in the north end of the rise. This end is about 1 fathom from being in a line with the rise.—Gooding's lode: The stop in back of 23 north is, on an average, worth 1 1/2 ton of lead and an equal quantity of tin to a fathom; the north end is worth 2 tons per fathom. The stop we are cutting down to the bottom of the 23 end, south of winze, is not yielding anything to value. The stop going north of the 23 end, south of winze, is worth 25 cwt. of lead and 1 1/2 ton of tin to a fathom. The stop we are now cutting down in the 13 end, south of No. 3 shaft, is worth 15 cwt. of lead and 1 ton of tin to a fathom. The stop going south of No. 4 shaft is in a split of the lode at present, and consequently not looking so well. We have had a breakage in one of the driving wheels of the jiggers, which has hindered us a little on the dressing floors; but this is all right again now. The new round babbles work well. The lead has gone off to-day, and we hope to have all the babbles down to station in another week.

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received March 4, 1875, per Tiber (s.), dated Morro Velho, Feb. 1:—

MEASUREMENTS FOR JANUARY.—I beg to advise the result of the measurements of sinking, driving, and stoping during January, as taken to day, viz.:—

Fms. ft. in.

The western driving has been extended 2 3 0
The sump has been sunk vertically 1 4 0
The length of the excavation is now 30 3 10

There are now four stopes west from the sump, which gives the following heights above it:—

Fms. ft. in.

First stope 2 1 0
Second stope 2 2 6
Third stope 2 2 8
Fourth stope 3 1 5

The above shows a continuous improvement in forming our stoping ground, while at the same time driving westward and sinking are vigorously and successfully prosecuted. All these operations are performed by contract, the miners paying the whole cost of labour and materials.

GOLD EXTRACTED TO DATE.—The produce extracted from the mineral treated during the second division of the month (January), being a period of 10 days, has amounted to 12,247 7 oits. It has been derived as follows:—

Oits. Tons. Oits. Tons. Oits. Tons.

From mineral stamped 11,198 1 from 1445 = 7 749
Re-treatment 1,049 6 " = .726

Total 12,247 7 1445 = 8 475

Oits. Ozs. troy. Tons. Oits. Ozs. troy per ton.

Or 12,247 7 — 1388-9036 = 8475 or 931

The above produce is a lower yield per ton than 8475 of previous divisions gave, but the yield per diem from the stamps is good, being at the rate of 12247 7 oits.

Advices received March 20, 1875, per Douro, dated Morro Velho, Feb. 17:—

GENERAL OPERATIONS.—Since the date of last advices the general work of the company, both at surface and in the mine, has been conducted efficiently and prosecuted without the slightest interruption. The effects of the previous wet weather have almost disappeared, and we are now enjoying the pleasant relief of what is known as the Veronica.

PRODUCE FOR MONTH OF JANUARY.—The gold extracted during January amounts to 37,769 2 oits., and has been derived as follows:—

Oits. Tons. Oits. Tons. Oits. per ton.

Mineral stamped 34,963 6 from 4366 = 8 00
Re-treatment 2,315 6 " = .642

Total 37,769 2 " 4366 = 8 642

Oits. Ozs. Troy. Tons. Oits. Ozs. Troy per ton.

Or 37,769 2 — 4354-1744 from 4366 = 8 642 or .9075

The above gold return is about 2000 oits more than was extracted in the month of December, the increase arising from more mineral being stamped (say) 673 tons, while the standard yield of the ore is 1 oit. per ton lower. Killas intruding on the lode from the south wall, in the western part of the mine, is the cause of the lower standard yield.

COST AND PROFIT.

The produce for January, as shown above, being 37,769 2 oits.

Deduct loss in melting into bars 298 1 "

37,471 1 at 7s. 9d. per oit. = £14,520 1 0

Cost, less sums received in diminution of the same 6779 1 7

Profit for the month of January £ 8740 19 5

The cost is about 550¢ higher than was incurred in December, the increase being chiefly in labour and in salaries and wages to the end of the year 1874; but the profit taking into account our present mining space and the limited hauling arrangements in use should be regarded as satisfactory.

MINE DEPARTMENT.—The general mining work has been carried on very regularly and without any drawbacks. The quantity of mineral quarried and delivered at the spelling floors amounted to 4598 wagons, being the result of an average of 97-50 boxes, equal to 48 wagons per box, which is good duty, remembering we have been constantly sinking and driving throughout the month. During the heavy and prolonged rains the pumping arrangements kept the water easily and completely under control, and the hauling wheel raised all the mineral quar-

ried. The plan of sinking, driving, and stoping being performed by contract, including all cost, is answering well, both for the company and the contractors.

REDUCTION DEPARTMENT.—The stamping mills have been steadily employed in reducing mineral, and have done large duty, amounting to 4366 tons, equal to 140 tons per diem. The amalgamation of the sand has been successfully effected, 4144 cubic feet having been treated, yielding 9.5 oits. of gold per cubic foot. The recovery of the gold contents of the ore has been very good, and the general duty creditably performed.

GOLD EXTRACTED TO DATE.—The produce extracted during the first division of February, a period of 8 days, amounted to 9198 1 oits. It has been derived as follows:—

From mineral stamped Oits. Tons. Oits. per ton.

Re-treatment 8540 7 from 987 = 8 653

6574 " = .666

Total 9198 1 " 987 = 9 319

Oits. Ozs. troy. Tons. Oits. Ozs. troy per ton.

Or 9198 1 — 1060-9311 from 987 = 9 319, or 1-0733

This gold return may be considered as about the produce which can be conveniently extracted from the mineral at present available in the mine. A larger proportion of that quarried in the western part of the excavation, where there is some killas intruding into the lode, would not give so good a standard yield as that now recorded. The whole of the operations of the company are now being carried on with regularity, satisfactory duty being done throughout.

The gold troph was dispatched from Morro Velho on Feb. 13, taking 16 boxes containing 47 bars, weighing in all 73213-7 oitavas = 703-36 lbs. troy, for shipment per Douro (s.), for delivery in London, N. B.—The gold has duly arrived.

The following telegrams have been received:—

On Feb. 23—Produce, 8 days (first division) of February, 9000 oitavas, yield 9.1 oitavas per ton; profit for January, 8700.

On March 2—Produce, 10 days (second division) of February, 11,000 oitavas, yield 9.1 oitavas per ton.

On March 17—Produce, 28 days (month) of February, 33,500 oitavas, yield 9.4 oitavas per ton.

On March 23—Produce 11 days of March, 13,750 oits.; oitavas per diem, 1280. Profit for the month of February, 8000.

DON PEDRO NORTE DEL REY.—Report for January: Produce, 1223 oits., at 8s. 6d. per oit., 30742, or 6d.; cost, 2615/ 0s. 9d.; profit, 458/ 19s. 9d.

First Division of February: Produce weighed, 5733 oits. Remittance (one month) 10,704 1/2 oits. bar gold.—Telegram from Rio (March 23): Produce for February, 9900 oits.; profit, 1850/ . produce weighed up (first division of March), 1800 oits.

COLORADO TERRIBLE LODE.—Mr. Henry's advices, dated March 2, are to hand. He reports all going well, and certain improvements, as follows:

We have started a new winze below the 5th level; the lode at this point is worth 1/2 ton per fathom. We shall have a fine course of ore open for stoping when this winze is holed to the 6th level. I am glad to tell you that the 7th drift west has greatly improved since Saturday, as are also one or two of the stopes. I think the 7th drift west is about to intersect the rich bunch of ore which was driven through in the level above. It will greatly help our returns if this end opens up good ground. The mine is very well laid out and secured by timber where necessary, and the levels of a good size. My official advices will follow at an early date.

RIO TINTO.—Overburden: Total removal to March 6, 216,000 tons.

The ore laid bare is more than sufficient for twelve months' shipments, and is of very superior quality.—Mine: Copious rain had fallen, with a very beneficial result upon the production of cement copper (precipitate).—Railway: The permanent way is being laid from Huelva, and this operation is about to be commenced from the other end as well. The line can be completed in time to commence shipping during July.—Pier: Excellent progress is being made.

BIRDSEYE CREEK.—G. S. Powers, March 4: I have to-day sent to mint 280 oits., the result of our clean-up in Neece claim to March 1, together with the amount taken out in the month of January, will make the receipts for this claim for the two months nearly \$8000, and will give nearly \$4000 profit. I will give you a full statement as soon as mint memorandum is received.

Distance run in Poochey Tunnel from both faces from Jan. 31 to Feb. 28, 65 ft. leaving, according to surveyor's measurement, 58 ft. to run to make the connection. I shall then proceed to put in sluices and make ready for washing, should we be fortunate enough to have any water above Neece and west head. I will write you further in a few days, as I am somewhat hurried at present.

BLUR TENT CONSOLIDATED (Gold).—E. B. Eddy, Feb. 28: Since my last we have got our derrick nearly ready for erection, and shall raise it as soon as we are in a position of getting off another small blast—just to the right of the last one fired. The last blast did very well, but not all that we expected. It burst out the bottom, but the main bank stands, contrary to our expectation, apparently unsupported. We are now running in another drift, and shall run in 30 ft. and expect 45 kgs of powder. If this blast does as well as the last small one, I think the bank must certainly be blown down. We shall then be able to work back to the 13th instant we had only a few Chinese in the mine, it being their holiday time. We have now employed about 50 Chinese and 30 whites. We expect to increase the Chinese force after March 1. We have water for washing in the yard, and prospecting about 21/2 hours daily; such gravel as we have been able to wash has paid well, and so soon as there is sufficient water for continuous washing I believe we shall be able to advise you of a good profit. There is no dead work being done in the mine at present, only two drifts are being run, and those we believe to be in good ground—there are Nos. 2 and 3 sub-drifts north. The ground on the north side is now in very good condition for working, the water having well drained out. We shall at once extract all the ground opened on the south side that will leave a profit for mining. The labour exp. for current month up to the 20th inst. is \$2850.—Feb. 27: There has been no increase of the water since last writing. We are only able to wash about two hours daily; the weather for some days has been threatening a storm of some kind. We may look for a severe storm of snow some time next month, after which we shall probably have water for continuous washing. Some tests have been made within the past day or two of the gravel from the north side of the tunnel in the new ground, with very flattering results. Such gravel as we are able to wash in the yard appears to be yielding well. As soon as more Chinese can be put on it is expected we shall increase the weekly production of gravel to 3000 loads, which is about the extent of the capabilities of the main tunnel track. The gravel has now to be moved fully 4000 feet. The only openings being run at present are the sub-drifts Nos. 2 and 3 out of No. 3 main drift north. Everything about the property is running smoothly. It is to be hoped that no more severe storms may come this season, so that the roads from below may be opened for travel early. Soon after water for continuous washing is at hand I hope to commence remitting bullion to you.

years, and it is now thought that the great object of the company's search—the main deep lead to the westward—has been found, but such an immense quantity of water has been met with, that even with the company's tremendous engine it is very difficult to open into the lead.

TANKERVILLE.—The best report ever received from this great mine will be found in the usual column this week. Though only a part of the lode in the 152 is carried in the dragee it is worth 120*l.* per fathom, while in the winze below the 140, 7 to 8 fms. ahead of the 152 end, there is a course of solid lead ore, worth 200*l.* per fm. The stop in roof of the 142 is worth 100*l.* per fathom; the new lode in the 140 cross-cut 100*l.* per fm.; and in the winze below the 120 is worth 70*l.* per fathom. The amount of ore returned in the past fortnight is 90 tons—at the rate of 180 tons a month. This week 130 tons have been sold for 15*l.* 6*s.* per ton, making 1953*l.* 5*s.*

DEATH OF MR. G. BAILEY TOMS.—We deeply regret to have to announce the sudden death of Mr. G. Bailey Toms, a well-known iron merchant of the City, which suddenly took place at Notting Hill Gate Railway Station on the morning of March 15, while on his way to Lawrence Pountney Hill. The name of G. Bailey Toms, of the firm of G. Bailey Toms and Co., is known to almost every large ironmaster in the United Kingdom, and we may venture to say Mr. Toms was as universally esteemed and respected by all as any member of the trade in the City. Mr. G. Bailey Toms was a native of Chard, in Somersetshire, and son of a banker in the same county. He commenced business as an iron merchant in London 26 years since. He was soon after appointed agent to the Great Consett Company, and held this important appointment for a considerable period. Subsequently, and since that period, Mr. Toms has carried on business as an iron merchant, under the style and firm of G. Bailey Toms and Co., with more than ordinary success. G. Bailey Toms always stood high in the City, and was without doubt a first-class London iron merchant. His business was principally in rails, fittings, and railway plant of every description, and in this particular branch of the trade as shippers and iron merchants. Bailey Toms and Co. have done a very large and successful business in the City, particularly during the last 18 years. In the early part of last year Mr. Toms made a business visit to the continent of Europe, which occupied him nine months. Since his return home, although he visited the office daily, the active part of the business devolved upon his nephew and partner, Mr. W. C. Gunn, the surviving partner, who still carries on the business under the old style. Bailey Toms was, without doubt, a very far-seeing man, and one of the most able men of the City in the iron trade. He frequently issued a circular when the trade required it, and his writing and ideas in regard to the trade were always practical and original. The London and country press fully appreciated, and were always ready to receive and publish, G. Bailey Toms' contributions on the iron trade—hence the name of deceased was well known in all iron circles. The house has extensive foreign connections of a high class, who will hear of his death with regret; and the heads of the trade will regret to hear of the loss of a man who spoke and wrote with truthfulness and honesty on the commercial part of the iron trade, and all will agree that one of our greatest living authorities is removed from us. G. Bailey Toms was a sensible, kind, and generous gentleman, who lived a frugal and careful life, and the wealth he accumulated was not held in a niggardly hand, for he often yielded to the impulse of generosity towards members of the trade less favoured by fortune than himself.—London Iron Trade Exchange, March 27.

TECHNICAL COMMERCIAL ANALYSIS.

Precisely as alcoholic liquors are now, unfortunately, more largely consumed than most other commodities, so chemists more constantly require a ready guide to refer to in proving them, and the steadily increasing demand for a manual to diminish the task of personally directing students in this branch of commercial analysis, has led Prof. Prescott to prepare a very useful little volume* as a help to the analyst. The principle of arrangement is very similar to that followed by the author in his "Proximate Organic Analysis," but is somewhat more concise. The first dozen pages are devoted to the consideration of the alcoholic fermentation and its accompanying changes, careful explanation being given of the composition and properties of alcohol; its fermentative properties and the variability of its mixtures; its alcoholic fermentation proper; the formation of sucrose and glycerine, and other alcohols; saccharine fermentation, lactic fermentation; the conditions of acetic acid formations; the compound ethers formed, and numerous fermentation. Attention is then directed to the constituents of the alcoholic spirits and liquors of commerce. The distilled liquors in commerce contain as legitimate constituents.—Alcohol from the proportion in British proof spirit (56 per cent. by volume, 49 per cent. by weight) down to about 30 per cent. by weight. In the most carefully distilled liquors fusel oil is not present in quantities sufficient to be easily identified, but in the larger number of liquors it can be found, in proportions varying from an ineffective trace to an amount notably affecting the sensible properties of the liquor. Ethers, acetic acid, volatile oils, as specified under the head of each liquor, are found in very small quantities, each slightly affecting the odour and flavour. Colour substances and astringents from the wood of casks are present in minute quantities, and water forms the remainder of the liquor. But as additions, and not legitimate, are found various articles which the caprice or ingenuity of the manipulator suggests, and it is to facilitate the detection of these that Dr. Prescott's book has been written. In the portion of the book referring to the chemical examination of alcoholic liquors, care is taken to furnish the reader with ample information, to enable him to identify the various constituents, to separate them, and to determine the percentage, the whole being so arranged that the examination can be performed quickly and satisfactorily.

Although extending to only a hundred pages, the volume gives every fact which the analyst devoting himself to this branch of examination for adulteration need desire, and he will find the table of references give an outline of the order of examination of alcohol, whiskey, gin, rum, liquors, wines, and beer respectively, really invaluable; whilst even the general public will not fail to derive pleasure from a careful study of the book, as it will give them an insight into some of the secrets of adulteration, and make them less willing to indulge too freely in beverages they have been accustomed to enjoy. In issuing the book Dr. Prescott has performed an important service both to the student of analytical chemistry and to the practical analyst.

* "Chemical Examination of Alcoholic Liquors: a manual of the constituents of the distilled spirits and fermented liquors of commerce, and their qualitative and quantitative determination." By ALFRED B. PRESCOTT, M.D. New York: Van Nostrand, Murray and Warren Streets.

CAPITAL: ITS PROFITABLE EMPLOYMENT BY JUDICIOUS INVESTMENTS.—A second edition of his admirable little volume bearing this title has just been issued by Mr. E. J. BARTLETT, of Great St. Helen's. The author remarks that in publishing the work he has been influenced by a desire of furnishing to his readers in general, and to his clients in particular, the most reliable data on which to select securities. For this task his personal avocations afford him peculiar facilities, and his endeavour has been to place the knowledge thus acquired at the service of the public. Most persons experience great trouble in making investments, from the difficulty of ascertaining how they may do so at once profitably and with safety. They are, in many cases, forced to rely on the opinion of others, and often discover, when it is too late, that they have made bad choices. It is, no doubt, always well for those who are not engaged in dealing with stocks and other securities to take the advice of persons who make the stock and share markets their study, as they are thus enabled to take advantage of the fluctuations which necessarily arise. No person, however, ought to place themselves and their dearest interests entirely in the keeping of others, and his object is to enable those who peruse his book to judge if the counsel given them is well founded, and to have good grounds for forming a correct judgment. Mr. Bartlett's name has long been known to the readers of the Journal for his contributions to the literature of this class, and his present volume is certainly one of the most complete and useful he has yet issued. All necessary information is given concerning British, Colonial, and Foreign Government Securities, English, Foreign, and Colonial Railways, American Securities, Joint-Stock Banks, Telegraph, Miscellaneous, Colliery, and Metal Mining Companies, and no pains have been spared to give the particulars in clear and lucid language. Investors generally will find the book well worthy of attentive perusal.

CENTRAL FOXDALE MINES, ISLE OF MAN—SPECIAL REPORT.

March 18.—Since Feb. 1 we have continued the driving of the 90 fm. level east. The first 3 fms. contained a little ore, in a very kindly looking lode, the component parts of which led me to believe that we were in close proximity to a deposit. This fact is now verified, for in the last few fathoms of driving we have found ore mixed throughout the vein, and it is my opinion that we have reached the commencement of the pipe of ore seen going down in the 75. If this be the case, and there is scarcely a doubt of it, the prospect looks well for the next, or 105 fm., level, as it plainly shows that the ore is extending in length westward, or towards Amy's shaft, and the further driving of this level will prove its continuity eastward. In the 25 we have been rising more than stooping, in order to effect a communication between this level and the sump now sinking below the 60, as we find that we are working at a great disadvantage for want of ventilation. As soon as this is accomplished we can prove this part of the lode at a slight expense, inasmuch as the engine (the usual means of supplying air) can then work a stroke, at least, per minute less than at present. About the beginning of next month we intend making preparations to sink the engine-shaft under the 90 to the 105 fm. level—a point of great importance, as it is fully expected that both levels will unite at that depth, and that a deposit of ore will be met with. At Amy's and Taylor's there is nothing doing as yet, both mines being full of water, and before we can clear them there are sundry repairs to be done to the bobs, flat-rods, &c. At present we are flooring the winding and crushing engine house, making powder magazine, repairing one of the boilers at the pumping-engine, &c., all of which must be completed before we can get fully to work. As far as we have gone, our prospects are certainly improving, and in a little time I fully expect we shall have a good mine. The engines, machinery, and pitwork are all working well. We purpose sampling 20 tons of ore for next site.—EDWD. BAWDEN, JUN.

COAL-CUTTING MACHINE.—Mr. H. WILDE, of Manchester, engineer, has patented some improvements in machinery or apparatus for excavating coal and other minerals. His improvements consist of portable machine in which a pick is moved to and fro by a capstan wheel to form the groove or undercut; the pick is raised and lowered to increase the depth of the cut by a screw; the whole machine is moved along a bed fixed to the floor of the mine.

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, MARCH 25, 1875.

COPPER.	£	s.	d.	£	s.	d.
Best selected	89	0	—	—	—	—
Foung cake and tile..	87	0	—	—	—	—
Sheathing & sheets..	93	0	—	—	—	—
Bolts	95	0	—	96	0	0
Bottoms	95	0	—	96	0	0
Old	80	0	—	83	0	0
Australian, Wallaroo	90	0	—	—	—	—
ditto other brands	88	0	—	89	0	0
Chili bars, g.o.b.	88	0	—	82	10	0
Wire	0	1	0	—	—	—
Tubes	0	1	0	—	—	—
 BRASS.						
Sheets	9	1	0	—	—	—
Wire	9	1	0	—	—	—
Tubes	12	—	—	12	—	—
Yellow metal sheathing	7	1	0	—	—	—
Sheets	7	1	0	—	—	—
 SPELTER.						
Foreign on the spot..	23	7	0	—	—	—
" to arrive	23	10	0	—	—	—
 ZINC.						
In sheets	30	10	0	—	—	—
 TIN.						
English blocks	94	0	—	—	—	—
Do., bars (in brls.)	95	0	—	—	—	—
Do., refined	96	0	—	—	—	—
Barca	95	0	—	—	—	—
Straits	89	0	—	90	0	0
Australian	88	0	—	—	—	—
 TIN-PLATES.*						
Charcoal, 1st qua..	£1	18	0	—	—	—
IX Do., 1st quality	2	4	0	—	—	—
IX Do., 2d quality	1	16	0	1	17	0
IX Do., 2d quality	2	2	0	2	3	0
IX Coke	1	6	0	1	7	6
IX Ditto	1	12	0	1	13	6
Spanish	18	10	0	19	0	0
Canada plates, p. ton..	18	0	—	18	0	—
" at works	18	0	—	18	0	—
 SHIMPLATES.						
Week ending March 20, 1875				Tons 10,614		
Week ending March 21, 1874				6,816		
 Increase				3,798		
Total increase for 1875				Tons 10,499		
 TIN.						
During the early part of the week the market went up rapidly to 90 <i>l.</i> for Straits, at which a considerable amount of business was done, said to have been very much of a speculative character, since then the market has not been quite so steady, and to-day 89 <i>l.</i> to 90 <i>l.</i> cash, and 88 <i>l.</i> to 89 <i>l.</i> is quoted for arrival.						

IRON.	£	s.	d.	£	s.	d.
Bars Welsh, in London	8	15	0	—	—	—
Do., to arrive	8	12	6	8	15	0
Nail rods	9	5	0	—	—	—
Staffs, in London	10	0	—	—	—	—
Bars	10	0	—	11	0	0
Hoops	11	0	0	12	0	0
Bars	12	0	0	11	0	0
Hoops	10	0	—	11	0	0
Sheets, single & plates	12	0	—	12	0	0
Pig No. 1, in Wales	5	0	—	6	0	0
Refined metal, ditto	7	0	—	8	0	0
Bars, common, ditto	7	15	0	8	0	0
Do., merchant, f.o.b.	8	0	—	8	10	0
Do., railway, in Wales	6	15	0	7	0	0
Do., Swed. in London	16	0	0	17	5	0
To arrive	17	0	0	—	—	—
Pig, No. 1, in Clyde	3	12	6	4	17	6
Do., f.o.b. Tyne or Tees	4	0	—	5	0	0
Do., Nos. 3, 4, f.o.b. do.	3	10	0	4	0	0
Railway chairs	5	0	—	5	5	0
" spikes	12	10	0	14	0	0
Indian Charcoal Pigs, in London, p. ton	8	0	—	10	0	0
 LEAD.						
English Pig, com.	21	5	0	—	—	—
Ditto, L.B.	21	10	0	—	—	—
Ditto, W.B.	22	10	0	—	—	—
Ditto, in faggots	20	10	0	—	—	—
English, spring	19	0	—	24	0	0
 SHIPMENTS.						
Week ending March 20, 1875						

NOTICES TO CORRESPONDENTS.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

COPPER SMELTING.—Can any reader enlighten me as to how the best information can be obtained respecting the structure and mode of conducting copper ore smelting in blast furnaces?—O. C. T.: Norway, March 1.

ASBESTOS.—Can any reader tell me in next week's Journal where I can buy asbestos in quantity—say, by the hundredweight?—W. A. H.

STRANFORD IRON AND STEEL COMPANY.—Can any reader give me any information respecting this company's affairs? The last I heard was that it was in course of winding-up.—A SHAREHOLDER.

THE SUPPLEMENTARY SHEET.—We have received occasional complaints, and of late a good many, that the Journal is delivered by country booksellers without the Supplement. Subscribers would oblige us by demanding that the paper should be handed to them complete, as every journal is accompanied by the Supplement when it leaves our office, and the fault of omission must rest with the country bookseller or their London agent.

SCALE FOR ADVERTISEMENTS.—Our charge for general advertisements is—for six lines and under, 4s.; per line afterwards, 8d. Average, 12 words per line. Received,—"G. B." (Bridgnorth)—"E. M."—"G. N."—"Another Shareholder" (New Fowey Consols)—"R. G."—"H. W."—"A. L."—"Shareholder" (East Van) See report of meeting in another column—"T. A. R."—"H. G."—We are compelled to postpone several letters from correspondents, among them—Mineral Nomenclature—German v. Cornish Agents—Boring Machinery, &c.

AMERICAN SUBSCRIBERS.—In reply to several enquiries, it may be stated that subscribers in the United States can be supplied with the *Mining Journal*, post free, at the price of \$8 50c. gold per annum, payable in advance, by remitting to Mr. D. Van Nostrand, publisher, and importer of scientific books, &c., Murray-street, New York; or, direct to our Office, 26 Fleet-street, E.C.

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, MARCH 27, 1875.

EXTRACTING GOLD FROM AURIFEROUS PYRITES.

We have been favoured by Mr. R. M. SARJEANT, the Chairman, with a copy of the report of the Pyrites Board, just issued to both Houses of the Victorian Parliament; and which at the present moment, when attention is again directed to the development of the auriferous deposits of Wales, will be of even more than ordinary interest. In June, 1873, his Excellency the Governor-in-Council, appointed Messrs. M. Sarjeant, R. H. Bland, J. C. Newberry, G. H. F. Ulrich, W. Shireess, and J. A. Lewis a board to investigate and report upon the methods of treating pyrites and pyritic veinstuffs, as practised on the gold fields, and to make a recommendation as to the best and most economical system of extracting the gold from auriferous pyrites; and after holding 14 meetings in various gold mining districts, and taking the evidence of witnesses, as well as visiting the leading works at which information could be collected, the report was presented. With a view to facilitate progress the board framed and adopted a series of questions relating to the subject under enquiry, which were printed, and copies sent to mining managers and others interested in the treatment of pyrites throughout the various mining districts, to the other colonies and elsewhere, with a request for replies. A number of such replies have accordingly been made. The board refer very favourably to Claude's process (that which is in use at the Widnes Metal Company's Works, in Lancashire, and which has already been described in the *Mining Journal*) remarking that the results obtained by this system may be considered extraordinary, inasmuch as the gold in the stuff treated, though not found in weighable quantity, on assay, nevertheless yields sufficient to more than cover the cost of the operation. Messrs. Foord and Miller, in their evidence, dwell strongly on the merits of this method (the former gentleman terming it a complete process without waste products). The special expense of extracting the precious metals by this method is about 6d. per ton of roasted pyrites, and the net profit about 3s. 6d. per ton, the material operated on being very poor pyrites, obtained in great part from Spain and Portugal, for vitriol manufactures, on account of the sulphur it contains. Mr. Miller, in his evidence, says—"Should the process prove available here, it would probably give rise to the formation of a new industry in the manufacture of iodine from the seaweeds of the coast."

There can be little question that, except in certain isolated cases, it is essential when ordinary pyrites has to be turned to commercial account to arrange a process for utilising the whole of the constituents, and when from the presence of some objectionable ingredient this becomes impracticable, it must be well considered whether it is worth treating at all. With regard to the auriferous pyrites of Wales, it has been conclusively ascertained that it is not sufficiently reliable from the irregularity of its yield of gold to be treated for that metal alone, but it does not at all follow that if the other constituents of the Welsh ores could be made marketable the working of the auriferous deposits of Wales would prove unremunerative. A complete process without waste products may return large dividends when the saving of one product and wasting of the remainder entails heavy losses. Referring to the desirability of avoiding waste products, the Pyrites Board remark that very little practical attention has yet been given in this colony to extracting other constituents of pyrites, such as silver, copper, nickel, cobalt, and other metals, and also sulphur and arsenic, which, from a purely commercial point of view, are of vast importance, and capable of adding very materially to the wealth of the colony. Most of the waste products, as they are termed, are such no longer, as their presence has increased the value of and demand in Europe for pyrites of all kinds. They mention, moreover, that a statement from the annual returns of the Customs' Department shows that from 1869 to 1872, including a period of four years, 1558 tons of sulphur, valued at 18,528l., were imported; and when it is considered that this article could be produced there in large quantities, sufficient not only for their own use but for the supply of other countries, it is time that public attention should be directed to the matter. They are fully of opinion that the establishment of large central works for the treatment of pyrites on the most thorough and approved system would be a very great advantage to the colony in every respect. Such works would give rise to the foundation of many new industries, besides tending to the production of larger quantities of gold. It would be necessary to establish works in situations easily accessible to railway communication from the gold fields, whence the supply of raw pyrites could be regularly and easily obtained. There could be no objection to the occupation by such establishments of advantageous sites on the ground of injury to public health, as the fumes given off in the process of roasting pyrites would be condensed for the purpose of saving the sulphur and arsenic. The operations to be carried on would be the receipt of pyrites, the extraction of the gold and other metals, as well as the sulphur and arsenic contained, the subsequent treatment of the residues, and the preparation of the sulphur, &c., to fit them for the market.

The whole of the evidence has been admirably collated by Mr. Percy C. Hodgkinson, who has acted as honorary secretary, and the board have expressed their appreciation of his services, at the same time expressing their hope that the Government will see fit to mark its sense of the zeal and ability he has shown. It appears from the evidence that crushing pyritic quartz raw is decidedly the more advantageous method, and on this point the information supplied by the majority of mining engineers examined is corroborated by the professional evidence given. It is asserted that it would be impossible to thoroughly oxidise the sulphur by burning, and that a lower sulphide would result, which would melt and enclose the fine particles of gold, rendering the subsequent extraction more difficult. Mr. Latta has microscopically examined raw and burnt quartz washings from the lowest blankets, and found most

particles of gold in the latter. After a careful consideration of this portion of the question the board is of opinion that crushing raw is the best method of treatment, except when pyrites is absent, then burning might be adopted if fuel is easily obtainable, in order to economise wear and tear of machinery in crushing. With regard to concentration—that is, the separation of the various descriptions of pyrites from the crushed material—it is stated that in one instance the use of shaking-tables, and in one or two others self-acting jiggling machines, are regarded as very good, but the great majority of witnesses are in favour of using Borlase's concave buddle, with Munday's patent scrapers. Some of the gentlemen are of opinion that a classification of the sand operated upon according to size of grain should be made, but the balance of evidence is to the effect that the use of the buddle renders classification unnecessary, the loss of pyrites not being more than 5 per cent. The board is of opinion, however, that classification will ultimately be found beneficial, and must eventually be adopted.

A very important portion of the subject under enquiry, and one which demands great attention, is the best method of dealing with the pyrites after concentration. The evidence on this point is almost unanimously in favour of roasting. One or two witnesses deposed to having attempted to extract the gold by grinding and amalgamating raw, but these attempts have almost invariably resulted in a greatly increased loss both in gold and mercury. The losses occur through the presence of arsenic and sulphur in the material operated on, causing what is technically termed flouring, by chemical, as well as by mechanical action. Some little information has also been obtained relative to the mode of extraction by a metallurgical treatment of the ore, but so little is really known of a thoroughly reliable character regarding it that the board cannot do more than recommend the process to the notice of persons interested, in the hope that further experiment may demonstrate clearly its actual value. It would, however, appear from the evidence that ores containing antimony in large quantities can only be effectively treated by this method. For roasting reverberatory furnaces, with inclined floors, are almost universally recommended, and these appear to be the best at present in use in Victoria. Attention is drawn to Hocking and Oxlade's furnace, already well known to the readers of the *Mining Journal*. The special advantages claimed for this description of furnace over others is on account of the self-acting motion imparted to the pyrites, which motion obviates the continual raking of the "stuff" by manual labour, as at present, and because the gradual presentation of fresh surfaces to the flame is thoroughly and regularly effected. The roasting requires both care and time; it should be carried to the complete decomposition of the arsenides or sulphides—or, in other words, until the arsenic and sulphur are dispersed, and the ores become what is technically called "sweet." From 12 to 18 hours are required for the calcining, the time depending upon the stuff treated, that containing the largest quantity of sulphur and arsenic taking the longest period to calcine. There is a conflict of opinion with regard to the admission of quartz sand into the furnace with the ores, some of the witnesses asserting that the pyrites should be as pure as possible, as the introduction of quartz causes (in the subsequent process of amalgamation) a great loss of mercury, by cutting it up. The balance of evidence is, however, favourable to the introduction of a small percentage of quartz sand, as tending to keep the charge open, thereby admitting the air, and keeping the pyrites free, or, as Mr. F. B. Miller says, "to check the agglomeration of the particles, for when they have once begun to fuse together it is very difficult, if not impossible, to roast properly." It must, however, be remembered that none of the present methods of concentration are so sufficiently perfect as to thoroughly cleanse the pyrites, and that in all parcels a small proportion of quartz sand is found. The evidence is contradictory as to the value of introducing combustible substances, such as charcoal, into the furnace with the pyrites; the majority of practical men examined do not see that any advantages are gained thereby, and they are, to say at best, of doubtful utility, and decidedly disadvantageous in cases where lead and antimony are present. It is difficult to fix accurately the proportions of fuel required.

After roasting, the next step in the treatment is amalgamating, which is generally done by grinding the roasted pyrites in Chilian mills, arrastres, or Wheeler's pans. The witnesses are almost unanimous as to the absolute necessity of thoroughly breaking up the quicksilver, in order that it may penetrate the stuff operated on, and take up all the gold brought in contact with it. So thoroughly, indeed, should this work be done that, to use the expression of one of the gentlemen examined, "a pen dipped into the stuff in the mills as into ink should show little globules of mercury." But these very means which are necessary to secure effective amalgamation also give rise to a form of flouring mercury, already referred to—in this case brought about by mechanical and not chemical action. The evil is as great, however, in this as in the case where chemical combinations retard the saving of gold, for it appears that, during the operation of flushing off, part of the flouring mercury is carried away with the water, and lost. It is found on examination that the loss of quicksilver alone has been as great as 2½ lbs. per ton of roasted ore treated. This, in addition to a considerable loss of gold as amalgam, renders it evident that if some effectual means of saving both be brought into general use many thousands of tons of tailings now lying unworked, which it would not otherwise pay to operate upon, could be made to yield a considerable profit, and open up a large field of labour. Some of the gentlemen examined state that they use copper plates, others copper plates and blanket tables, for the recovery, as far as possible, of flouring mercury. The water is run over these plates and blankets, which retain to a certain extent the particles of quicksilver and gold; nevertheless the loss, even in well managed works, is still considerable.

It has been matter of popular belief that the fumes evolved during the process of roasting pyrites are dangerous to health, and productive of injury to the surrounding vegetation; on this point the evidence is very contradictory, the witnesses, professional and lay, examined differing, and their experiences varying greatly. Some of them aver that, with ordinary sanitary precautions, such as washing the body with soap and water and changing the clothes after work hours, not the slightest injury is caused to the health of the men employed at the works, and it is stated that no cases of diphteria have been known to exist in their immediate vicinity. On the other hand, it is alleged that fumes passing over gardens adjacent destroy fruit trees and other vegetation, and the water from the roofs is injurious to health. Where the roofs of houses in the neighbourhood of pyrites works are of galvanised iron sulphate of zinc is formed by the condensation of the sulphurous fumes, but there is no reason to suppose that arsenical fumes are condensed in this way; on the contrary, there are chemical reasons why water collected on these roofs cannot contain arsenic. It is generally found that complaints are made only against works where no precautions are taken to effect the condensation of the fumes, and it is admitted that where proper condensation is carried out no injury is occasioned either to health or vegetation.

Summarising the results of their enquiries, the board, by way of recommendation, report:—(1) That it is decidedly better to crush quartz containing pyrites raw. (2) That the method of concentration which has given the most satisfaction in this colony is the use of Borlase's buddle with Munday's patent scrapers. (3) That it is absolutely necessary to roast pyrites previous to amalgamation, and for this purpose reverberatory furnaces with inclined hearths are the best at present in use in the colony. That the introduction of combustible substances with the charge is not advisable, and that attention should be given to the regular supply of fuel and to the proper regulation of the draught. (4) That for the purpose of amalgamation Wheeler's pans and Chilian mills are both very efficient, but, owing to the inability of the board to obtain analyses of the waste from each description of machine, their comparative saving values cannot be determined. (5) That the evil effects of the noxious fumes on health and vegetation are not at all great, and can be easily and wholly avoided by the use of water condensers in conjunction with suitable flues and high chimney stacks, and that the water used in condensing be disposed of in the most effectual manner that the local features in each case admit. And (6) that it would be very advantageous if large central works were erected for the thorough

treatment of pyrites and the whole of the waste products there, and that encouragement should be given by the Government, etc., by way of bonus or suitable site, to the person or company establishing such works.

EUROPEAN COAL MINING.

The production of coal appears to be steadily increasing in Europe, more and more of its latent coal wealth, and even Russia—sluggish, but now reviving Russia—is going into the coal mining business. We have on several occasions called attention to the progress of coal extraction in France, especially in the basin of the Nord and the Pas-de-Calais. We have also noticed the great advances which coal production has made in the (German) Ruhr basin; and we may now advantageously add a few particulars with reference to the coal trade of Bohemia. The North-West of Bohemia largely exceeds—in respect to the importance of its production and the quality of its coal—all the other coal centres of Austria and Hungary. In 1858 the North-West of Bohemia produced 400,000 tons of coal; in 1860, 1,000,000 tons; in 1862, 1,500,000 tons; in 1864, 1,700,000 tons; in 1867, 2,500,000 tons; in 1868, 3,300,000 tons; in 1872, 5,400,000 tons; and in 1873, 7,050,000 tons. The advance last 15 years; but, after all, the production bears but a very small proportion to the quantity of coal which remains to be utilized in the basin, since the amount of the coal comprised in the concessions granted thus far in the basin of North-Western Bohemia amounts according to a calculation made last year, to 15,369,000,000 tons. The collieries in operation and duly equipped with suitable machinery in the basin were last year 152 in number, and the force of working miners and other workmen attached to these mines was 12,368. Although 1874 can scarcely be said to have been a propitious year for European industry, the coal production of the North-West of Bohemia experienced scarcely any check last year, but continues to present a progressive development. The railways which accommodate the coal trade of the North-West of Bohemia employed in this special traffic 5480 trucks; and in 1874 the movement of coal by railway from the basin amounted to 6,960,158 tons, as compared with 5,129,073 tons in 1873, showing an augmentation of 34.90 per cent. Of the North-Western Bohemian coal moved by railway in 1874 it was computed that 3,299,379 tons went to foreign countries, as compared with 2,311,765 tons in 1873, showing an increase last year of 987,614 tons. The movement of North-Western Bohemian coal to the North of Germany (*via* Bodenbach, Ebersbach, Warnsdorf, Weifert, and Franzensbad) experienced a contraction last year, in consequence of the advance of the tariff to the extent of 20 per cent, as from Sept. 1, 1874, on most of the German railways, and a consequence also of the unfavourable condition of the navigation of the Elbe. On the other hand, the demand for Bohemian coal was encouraged by the opening of several lines of great value in Saxony, Brandenburg, and Lusatia; the opening of a direct line between Dresden and Berlin in the spring of 1875 will also prove an advantage.

The quantity of North-Western Bohemian coal conveyed to Germany (*via* Eger and Franzensbad) in 1874 experienced an increase as compared with 1873; but it will not attain any very great importance until the Pilzen and Eisenstein line has been opened, as it is hoped it will be, in the course of this year. As regards the outlets for North-Western Bohemian coal, the opening of the Elbe railway is considered an event of considerable importance. The coal of North-Western Bohemia succeeded in obtaining a firm footing last year upon the Vienna market. There, as in the North of Germany, and everywhere else where Bohemian coal has penetrated, its excellent qualities have been recognised, and its comparatively low price has excited some surprise. Bohemian coal taken at the pit's mouth is stated, indeed, to be now the cheapest combustible in the whole world. The future of the Bohemian coal trade seems to promise well, since, although the number of collieries in existence only increases slowly, those which exist are being developed more and more, and are also increasing their productive power. The local market for Bohemian coal is expected to expand when the production of beetroot sugar, which is now a young and growing industry in Germany, has acquired a greater development. The progress of the coal basin of the North-West of Bohemia would however, be greatly facilitated if the tariffs of the German railways were reduced to rates which would admit of the transport of Bohemian coal for greater distances. This question does not concern local interests merely; but it also affects an important amount of English and Belgian capital now engaged in the collieries of Bohemia. Altogether, it is clear that the production of coal is destined to be materially increased during the next few years, not merely by Bohemia, but also in other parts of Europe.

NEWFOUNDLAND MINING COMPANY.

In another column will be found a communication, from Messrs. MERRIMAN and POWELL, solicitors, acting on behalf of a shareholder, whose name does not appear, but who is said to have invested 1000*l.* in the Newfoundland Mining Company. These gentlemen are desirous of obtaining an independent liquidation and disclosure of some latent arrangement for the reconstruction of the company, which, they say, are denied them.

At the present stage of the proceedings it is unnecessary to offer any opinion on the issues thus raised between Messrs. MERRIMAN and POWELL's clients, who are said to form the bulk of the case paying shareholders, and the board, who are assumed by these gentlemen to chiefly represent the promoters' or nominee interest. The forthcoming meetings—the conference summoned by Messrs. MERRIMAN and POWELL at eleven o'clock, and the legal meeting summoned for twelve o'clock by the company on the same day—will be duly reported in the *Mining Journal*; and opinions on the merits of the dispute should be reserved until there is better material by which to judge than there is at the present moment.

In the meantime, however, the opinion has been freely expressed that it might have been wiser if the Chairman had offered to withdraw his scheme of re-construction, and postponed the resolution for liquidation, until after the facts by which the judgment of the shareholders could be guided had been fairly considered by them.

Too much, however, must not be made of the alleged want of courtesy to Mr. MERRIMAN. There is an over-sensitiveness on the part of some persons, which creates a prejudice not wholly justified by facts. An honourable man sees—or, what is to the same purpose—thinks he sees—that his honour is impeached by way of inference or suggestion; and, giving way to the impulses of indignation, he refuses that information which, if frankly and promptly given, would neutralise the attack or avoid the inference.

The letter of Mr. MERRIMAN may not in all respects be justified by the facts of the case, and the company may have a good answer to his statements; his advice may be wrong, his policy altogether mistaken or mischievous; but he has snatched an advantage by his demand for open investigation, and for a disclosure of all facts bearing upon the company's situation before handing over a property (which appears to have cost a large sum of money) to the voluntary liquidation of a director, or the nominee of the directors whose conduct in the management of the company's affairs is whether rightly or wrongly—viewed with dissatisfaction.

COAL AND IRON IN THE UNITED STATES.—The coal movement over the central division of the Central Railroad of New Jersey amounted last year to 2,363,869 tons. In 1869 the corresponding movement was 1,556,052 tons; in 1864, 1,149,964 tons; and in 1868, 638,958 tons. This branch of the company's business is thus steadily extending. The company has now laid 239½ miles of its system with steel rails. For the coming year the company has ordered 7000 tons at low prices. The Allentown Iron Company has sold a stock of pig-iron amounting to 28,000 tons, at \$29 per ton. The Northern Central and the Baltimore and Potomac Railroad Companies have commenced the introduction of steel rails. A scarcity of coal has been reported at some of the ironworks on the Philadelphia and Reading Railroad, in consequence of a temporary decline in the pro-

duction of coal in the Schuylkill region. The coal movement of Pennsylvania has decreased 425,074 tons thus far this year, as compared with the corresponding period of 1874.

THE MONITOR COAL-CUTTER.—At the St. Louis meeting of the American Institute of Mining Engineers, Mr. John S. Alexander, of Philadelphia, read an interesting paper upon an improved coal-cutting machine—the Monitor Coal-Cutter—invented by Mr. Horace F. Brown, of Indianapolis, and which has been in use since June, 1873, in Messrs. Niblock, Zimmerman, and Alexander's Coal Brook Mine No. 3, near Brazil, Indiana. In the Supplement to this day's *Mining Journal* the paper and accompanying illustrations are given, and from the interest now felt in the question of substituting coal-cutting machinery for hand labour they will be generally acceptable. The rapid dulling of the cutting points has been very satisfactorily overcome by the use of chrome steel, and in the hardest coal yet met with six yards have been cut with one set of points, while in a softer part of the vein, which partakes of that cuboid structure characteristic of the ordinary bituminous or coking coal, 25 yards have been reached. The waste in the undercutting is reduced to such an extent that the saving is sufficient to pay the operating expenses of the machine. The invention appears to have given great satisfaction.

ELEMENTARY MINERALOGY.—With a view to facilitate the study of geology and of mineral substances used in the arts, Prof. J. TENNANT, F.G.S., of King's College, will give on Monday next and five following days a course of six elementary lectures adapted to a juvenile audience. The course will commence with a description of the physical and chemical characters of minerals in general, the principal simple minerals being then separately considered, and the easiest mode of distinguishing them described. The earthy minerals, combustible minerals, minerals used in jewellery, and metallic minerals, will be considered separately. The course of instruction will include a minute description of all the substances entering into the composition of rocks, and of those minerals which are also used in the arts, illustrated by an extensive collection of characteristic specimens and diagrams of the principal crystalline forms, &c. The course will prove particularly attractive to enquiring boys home for their Easter holidays.

COAL IN PRUSSIA.—In 1873 Prussia produced 32,347,900 tons of coal, of the value of nearly 18,000,000/- sterling—the mines belonging to the State participating with 4,000,000 tons, of about 3,000,000/- value. Prussia, therefore, in the produce of coals ranks next to England and the United States of America.

MINERAL RESOURCES OF RUSSIA.—During the year 1874 the State foundries smelted 1,225,000 Russian pounds of bronze, 557,000 pounds of iron, and 1000 pounds of steel; 89,000 pounds weight of articles in bronze were cast, and 508,000 pounds weight of ammunition, 9000 pounds weight of steel cannon, and 15,000 pounds weight of iron cannon, 15,000 pounds of lead and 6600 pounds of zinc were smelted: 7800 pounds weight of iron articles, 10,000 pounds weight of sheet-iron, and 7500 roubles worth of iron for use in shipbuilding were also made, besides 46,700 side arms, 20,000 blades, and 5725 gun barrels. The amount of metal passing through private factories can only be approximately calculated, as the year is reckoned from May 1 to April 30. The following return, however, is supposed to be tolerably correct. The productions of the smelting establishments of the Ural are estimated at 13,200,000 pounds of bronze, 1,017,000 pounds of iron, 69,000 pounds of steel, and 100,000 pounds of copper. Those round Moscow are supposed to have produced 3,360,000 pounds of bronze and 1,830,000 pounds of iron. South Russian produce is estimated at 430,000 pounds of bronze and 440,000 pounds of iron; that of the Polish provinces at 1,370,000 pounds of bronze, 800,000 pounds of iron, and 120,000 pounds of zinc. Lastly, 44,000 pounds of copper is calculated as the return from the Caucasus. Gold to the amount of 1806 pounds was extracted during 1874, without reckoning the districts of Altai and Nerchinsk, which yield an annual average of 165 pounds. Coal has been worked with increased progress in every district except that of the Vistula, which is still suffering from the effect of the conflagrations of 1873. The total amount of coal and anthracite raised in 1874 was 83,575,000 pounds, the largest portion coming from the Government of Catherine-naw, the district of the Don Cossacks, the neighbourhood of Moscow, and from private mines. The extraction of mineral oils in the Caucasus shows a great increase, and oil wells have lately been discovered in Poland in the Government of Kielce. A Russian pound is equal to about 36 lb. English weight.

AMERICAN GOLD AND SILVER.—Messrs. Wells, Fargo, and Co. give the production of bullion for 1874 on the Pacific Slope at \$74,400,000, of which \$26,350,000 is gold and the rest silver. California produced about \$17,600,000 of gold, and Montana \$2,500,000; Nevada over \$35,000,000 of silver, and Utah about \$6,000,000. This is the largest production ever reached, exceeding that of the previous year by \$2,500,000.

THE TRANSVAAL GOLD FIELDS.—For some years past rumours have been afloat that gold existed in the Northern Transvaal, but it was not until the diamond fields began somewhat to wane and men were looking for some new source of treasure further afield that discoveries were actually made. Then it was that a stream began to flow across the Vaal river through the South African Republic to the gold districts beyond the little town of Lydenberg, and lying deep down amid the magnificent scenery in which the Drakensburg Mountains break down on to the flat bushy country which extends eastward to Delagoa Bay. First at Mac Mac and then at Pilgrim's Rest Creek gold of various quantities was found, from large lumps of 113 oz. to smaller gold and even dust. A white population of some 1000 persons were soon mining in the neighbourhood, and many hundreds of natives were helping them in their heavy work of removing the enormous stones and rocks from the bed of the creek, beneath which the largest gold has been found. About the same time as the Lydenberg fields were opened for alluvial working two rich quartz reefs, one some 200 miles to the north-west of Lydenberg, and the other some 300 miles further in the same direction, were discovered, and companies formed to work them by gold-crushing machinery, the former under the superintendence of Mr. E. Button, known as the Transvaal Gold Mining Company, at Eretelling; the latter superintended by J. Swinburne Brown, as the London and Limpopo Gold Mining Company at the Tati. Both are reported to be doing well, and in proof of this more machinery for crushing on a larger scale day and night is being brought out from England. To the far north of these gold fields, and lying towards the Zambesi river, Mr. Baines, F.R.G.S., the South African traveller, and Herr Carl Mauch, the discoverer of the vast ruins of Zimbabwe, or Zimbabo, supposed to be the ancient Ophir, have found three more very extensive systems of reefs, which are only awaiting their development by European enterprise and capital. Herr Carl Mauch has given us a sketch of reefs he found beyond the ruins of Zimbabwe towards the Zambesi, worked, it seems at present, but clumsily by natives, but even under such disadvantageous yielding "nuggets as large as hazel nuts." Amidst the mountains of the Transvaal an abundance of iron and coal exist; galena and lead are also found in certain districts, and lately a cobalt mine in which nickel silver has appeared in some quantity. A large native population shares the country with the white men, with whom they live on amicable terms, and for whom they are willing to work.

MANUFACTURE OF COKE.—Messrs. WM. PENROSE and WM. F. RICHARDS, of Swansea, have patented an improved method of producing coke. The invention consists in the mixing or incorporating of anthracite or stone coal, or free-burning steam coal, or coal known as Staffordshire slack, or other non-coking coals, with bituminous coal, or any other coal capable of making coke, with pitch or tar, or with any form of tar and bitumen, mineral oils containing bitumen, or any of the waste products of petroleum, such coal or coals being in a state of division. The mixture thus produced is to be placed in any well-known form of oven or retort commonly used for coking, and the surface is then to be covered with a layer of bituminous coal or other bituminous matter. In carrying out the invention they cause the coals to be disintegrated (or ground) by any well-known disintegrator (such, for example, as that known as Carr's disintegrator) and to such disintegrated coals or mixtures of

the same (by preference in a moist condition) they add one or more of the above-named ingredients—pitch tar, or any form of tar, bitumen, or mineral oils containing bitumen, petroleum, or any of the waste products of petroleum, and cause the same to be thoroughly mixed. When such mixture or incorporation has been effected, either by means of a disintegrator or pug-mill or other incorporating apparatus, the minerals thus mixed are to be introduced into a convenient retort, or any of the well-known forms of coking ovens, for the purpose of being converted into coke, and when placed in such oven or retort are to be covered with a layer of bituminous coal or matter, bituminous coal being preferred. The proportions in which the coals or mixtures of the same are to be employed together with one or more of the before-mentioned materials will vary according to the quality of the coal or coals and the nature of the bituminous matter employed. The inventors have found that good results may be obtained by employing from about 60 parts by weight of anthracite or stone coal of average good quality to about 30 parts by weight of bituminous or coking coal, and to about six parts by weight of pitch or ordinary coal tar. The layer of bituminous coal employed may vary from about 4 to 6 inches in depth, but, as before mentioned, these proportions and layers may be varied.

TRADE OF THE TYNE AND WEAR.

March 24.—The Coal Trade continues very dull, and it is found a difficult matter to keep the works going at all regularly—many of them, in both counties, have been laid off two, and some three, days per week of late. The competition for business also increases, and consequently, less prices are accepted in many cases than the quotations published—that is, for house and other coals of best quality, small coals, and coals of inferior quality. As the rates of the miners' wages are so difficult to get down, the prospect at present for colliers is very dull indeed, and the result must be that many works producing inferior and soft coals must be shut up before the end of the present year. The coke trade is unchanged, best qualities still quoted 16s. to 17s. 6d. per ton. The demand for gas and house coals is decreasing, and, although there is no change in the quotations the trade is getting weaker. A strike has taken place at the Monkwearmouth Colliery, where upwards of 1100 men and boys are employed. This awkward event has occurred through 16 men having seceded from the Union, and the men insisted that they must either enter the Union or the masters must discharge them. Of course, the masters refused to do this. The strike has gone on nearly a fortnight, and, as the horses are now taken out of the pits, it is likely to continue some time longer. The executive of the Miners' Union repudiate the action of the men in this matter, and they will receive no support from the funds.

The Iron Trade shows some signs of improvement. There was a fair attendance at Middlesborough on Tuesday, and enquiries were good; heavy contracts are expected shortly by many of the large firms. The rail-makers are making enquiries for pig-iron for future delivery, and they evidently anticipate an improvement in trade, and a better season than last year. Complaints are, however, numerous about the present rates. There is no change in the quotations for pig-iron, in some instances 6d. per ton less was taken for No. 3, and this quality was, on the whole, scarcely so firm. No. 4 forge was in good request, and stood firm at 56s., whilst No. 3 was 55s. 6d. to 59s. No. 1 stood at about 63s., net cash. There has been a better demand for the shipping trade, both coastwise and foreign, the strike of seamen which interfered with this trade last week having terminated. The price for ordinary rails keeps at about 7d.; common bars, 7d. 17s. 6d. to 8d.; ship-plates, 8s. 15s. to 8d. 17s. 6d.; sheets, 11d. 5s. to 11d. 10s.; puddled bars, 5d. to 5d. 2s. 6d. Much regret was expressed on 'Change at the death of Mr. McKean, of the Lackenby Ironworks. Coal for manufacturing purposes continues low in price. Unscreened, 5s. to 6s. 6d. at the pit. Coke is firmer, and best ranges from 16s. to 17s. at the ovens. A strike at the Britannia Ironworks has been referred to arbitration, and the men have resumed work.

At the Tynemouth Petty Sessions yesterday, when three magistrates were present, several cases under the Mines Regulation Act came on for hearing. Mr. James Willis, Inspector of Coal Mines, summoned Mr. Joseph Laycock, owner of Sedgill Colliery, for infringing the Coal Mines Act, he having in his mine on February 15 last an iron or steel picker. The Inspector also summoned Mr. William Nicholson, agent, and John Douglas, manager, on charges of having, on the same day, allowed gunpowder to go into the mine otherwise than in a cistern containing not more than 4 lbs., and also with neglect to keep at the office of the mine a register as required by section 13 of the Mines Regulation Act. Mr. T. Forster appeared for the prosecution, and Mr. Duglish for the defence. Mr. Forster, when about to open his case, was asked by the Chairman if he had referred to clause 67 of the Act, as follows:—"A person who is the owner, agent, or manager of any mine in which this Act applies, or a father, son, or brother of such owner, &c., shall not act as counsel to members of a court of summary jurisdiction in respect of any offence under this Act." The Chairman also added that with only one exception the Bench came under the operation of the clause.—Mr. Forster suggested that as Mr. Laycock would admit the offence he might consent to the parties acting, but the Chairman said that all the magistrates of the district were more or less interested in mining, and he thought it would not be possible to get a court at Tynemouth.—Mr. Forster suggested that Mr. Laycock's agreeing to pay the penalty might obviate the difficulty.—Mr. Fenwick, clerk: If the magistrates are convicted, how then?—Mr. Forster: If Mr. Laycock did not appeal it was of no consequence.—Ultimately, after a consultation with his client, Mr. Forster withdrew the charges, Mr. Laycock agreeing to pay the costs.

REPORT FROM CORNWALL.

March 25.—When the dawn is the darkest the day is near, and so when hope was exceedingly faint of any immediate change for the better, and when the most sanguine hardly ventured to foretell anything more favourable than an improvement some time in the summer, an improvement has come. It is not much, to be sure, but it is something. The tin standard was yesterday advanced 2d., and there are hopes of a still further improvement, though it would be by no means safe to prophesy. However, we may take it as tolerably certain that we have now seen the worst, and that the revival to which we have been looking has commenced.

There are indications that the differences in South Wales will ere long reach their termination, and that the masters will gain the victory that they have been fighting for. To outside and dispassionate observers the cause of the men has long seemed hopeless, but the conflict has been fought out to the bitter end—so bitterly that diabolical attempts have been made to blow up engine-houses with gunpowder, and that the colliery owners have had in some instances to engage men from Cornwall to work the engines. It is not their interest to sell poor coal; they sell what they receive. If the managers and committees of mines generally insisted on having good coal for their money the merchants would be compelled in turn to insist that they had it supplied to them, and the colliery owners of South Wales would not find the profitable market for their rubbish that they now do. Competition will keep down prices if our mines, now and then at any rate, do a little importing for themselves. It will require something in the way of combination to keep up—rather we should say to improve—the quality. The production of our ores must be cheapened, and it is a very happy augury that at the Dolcoath meeting Capt. Bawden said that that mine was now sending tin to the market cheaper than it had ever done before. When the coal supply is as it should be production will be cheaper still.

The price of arsenic still keeps up; very few people know why. It seems, however, that very large quantities are now being used in America to destroy the Colorado beetle, or American potato bug. The arsenic is strewed over the ground, and this kills the pest by millions. Arsenic has been found useful in this country to check the potato disease. In the mining districts of Redruth and Camborne are numerous tall chimneys belonging to the calcining ovens of

the tin mines, but, as it is difficult to obtain all the arsenic passing into the flues during its passage from the ovens to these chimneys, arsenic as fine as the finest dust escapes from the top of the chimneys, and is then scattered over the whole neighbourhood by the wind, settling on all kinds of vegetation, to the great loss of the agriculturist, whose cattle are sometimes the victims of the system. But it has been proved beyond all dispute that potatoes grown within the influence of these chimneys are free from the potato disease. Consequently, land that cannot be used for pasture is now extensively used for growing potatoes. If some simple method could be introduced of spreading small quantities of arsenic over the potato plant when it has arrived at a certain stage of growth, there can be but little doubt of the potato disease being as effectually stamped out as the American potato bug is destroyed. Arsenic has chiefly been produced, hitherto, in the locality already mentioned, and in the mining district of Tavistock and Gunnislake, the famous Devon Great Consols being the largest producers in the world. Now, however, the equally famous Botallack Mine is entering the lists. In that portion of Botallack known as Wheal Cock, in the 80 fm. level, there is a richly producing arsenic lode, 4 ft. wide. The stuff produced from this lode yields of its entirety 50 per cent. of arsenic. This may form a valuable addition to Botallack returns. The agents anticipate a most satisfactory yield of copper ores for this month, and the prospects of Wheal Cock are most encouraging.

We referred the other day to the fact that the iron mines of Perran had become the property of a new company of great strength. A few additional particulars have since transpired, which will be of interest to all who have watched the fortunes of this gigantic undertaking. It will be recollect that Messrs. Lafone, in their suit against the Mines Corporation, obtained an award of 10,000/-, and of 39,500/- in shares. But this award was not unconditional. There was a controlling document, by which it depended on Messrs. Lafone finding a company to purchase the mines and paying a deposit of 15,000/- within a specified period. This was not done, the award fell to the ground, and a new arbitration is now in progress, in which the Corporation claim a very large set-off from Messrs. Lafone. The mines are now in the hands of a body of gentlemen, who have all the grand requisites of wealth, experience, and energy, and great results are confidently anticipated.

Everybody who has travelled by rail in West Cornwall must be familiar with the appearance of the mountains of mine sand near Pool Station, which makes that spot look a very Sahara of barrenness. When the wind is high this sand is carried about in pitiless showers, much to the annoyance of the entire neighbourhood. Attention has recently been called to it by a writer in the *Western Morning News*, who says:—"If a bushel of March dust is worth a king's ransom, what untold wealth there must be in the huge heaps of mine sand near Pool station, on the West Cornwall line. When the wind is high there rises therefrom a chaos of mineral dust, known in the neighbourhood as the 'Red Cloud.' It loads the air far and near, spreads over the land in all directions, fills the eyes, nose, ears, and throat; is universally disagreeable and noxious, may at times be seen in the distance for miles, and when the wind is blowing strong from the southward is frequently carried right into the Bristol Channel. What can be done to remedy the nuisance I cannot quite see, but anybody who can do anything in that way will deserve universal gratitude."

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

March 25.—In anticipation of the holidays next week there has been rather more animation at the finished ironworks of the Staffordshire district during the last few days, but the condition of the trade has not materially improved. The selling prices of the cheaper classes of iron continue to show a good deal of irregularity, and the general tendency is in the direction of weakness. The impending reduction in the wages of miners and of all classes of ironworkers, contributes to produce an unsettled feeling in the general trade. There is no declared change in prices either of pig or finished iron, but the commoner qualities are now freely offering at last week's rates—3d. to 3d. 5s. for cinder pig, and 8d. 15s. for unmarked bars. Common sheets are also offering at somewhat easier rates than were obtainable a fortnight ago. Although temporarily depressed, it is believed the iron trade of the district is inherently sound, and that but for quite exceptional circumstances now influencing it a steady and prosperous business would be forthcoming.

Several additions will shortly be made to the number of blast-furnaces in operation in the South Staffordshire district. Two of the Willingworth Iron Company's furnaces, near Wednesbury (formerly belonging to Sir Horace St. Paul) are being re-lighted, after undergoing important modifications in construction. The Darlaston Steel and Iron Company, who have been increasing the height of two of their furnaces, will re-light them immediately after the holidays, and two new furnaces are being erected at Birchill, in the same neighbourhood, by the Castle Bridge Iron Company (Limited). The present number of furnaces actually blowing in the district is 78.

Mr. S. Woodall, of the Windmill End Ironworks, near Dudley, has just secured a large contract for engineering wrought iron-work for an Irish railway. Generally, however, the demand for this class of produce in South Staffordshire is quiet.

The report of the Darlaston Steel and Iron Company (Limited) has been issued this week. The gross profits for the half-year ending Dec. 31 amounted to 11,062/-, and the general charges to 7523/-, leaving a balance of profit for the six months of 3539/-, making, with the amount brought forward, 3580/- Against this there has to be set down for interest on loans and debentures 3614. A large balance of profit would have been earned but for quite exceptional and temporary causes, such as the miners' strike, the part reconstruction of blast-furnaces, and the flooding of the Darlaston Colliery by the breaking in of the canal. But for these circumstances a dividend would have been earned sufficient to pay 10 per cent. on the ordinary share capital of the company. The erection of new pumping plant at Cottrell's Farm Colliery is now completed, and the output of coal there will very shortly be doubled. The construction of the new mineral line at the Essington Colliery has been let, and the contractor engages to complete it by the end of July.

To-day's quotations on the Birmingham Stock Exchange included the following:—Chillingham Iron, 6s. sellers; John Bagnall and Sons, 6s. buyers; Birmingham Wagon 20; Ivy House and Northwood Colliery, par; Cannock and Huntington Colliery Company, 2s. 6d. buyers; Sandwell Park Colliery 34, sellers; Patent Shaft and Axle, 4s. prem.; Pelsall Coal and Iron, 5s. dis. The tendency of the market is, on the whole, steadier than noted last week.

The North Staffordshire Iron Trade continues more or less unsettled. In some few cases the mills are doing one or two extra turns, but nothing approaching full production is noticeable, and some of the forges are idle. Prices remain upon the basis of 8d. 17s. 6d. for bars, and 11d. 5s. to 11d. 10s. for boiler-plates. Now that Baltic navigation has recommended an improvement in the demand from that direction may be looked for. Pig-iron is in somewhat better enquiry, and Messrs. Heath and Sons have re-lighted one of their blast-furnaces.

SOUTH STAFFORDSHIRE MILL AND FORGE MANAGERS' ASSOCIATION.—The annual meeting of the members of this association was held at the Enchance, Wolverhampton, last Saturday. Mr. J. Jenks (President) in the chair, and there were present Messrs. Molineux, Bennett, Wright, W. Lester, Skidmore, Jones, Talbot Griffiths, Tibbs, Matthews, Brown, Milner Baker, W. Edwards, Millard, Rigby Coley, W. Adams, H. Hughes, and J. Lester (honorary secretary). The annual report, presented for acceptance, said that the past year had been alike interesting and successful, and gave good assurance that the association, if properly attended to, would occupy an important position in the future. Due, in part, to the instructive character of the meetings, the number of members had increased. A pleasant and successful trip had been made to Ravensdale and Chatterley, and it was hoped soon to pay a visit to the London and North-Western Locomotive Works, at Crewe. Latterly the association had been simply feeling its way, but now it was proposed to consolidate its basis, systematise its efforts, and to accomplish more in the future than had been accomplished in the past. To effect this it was proposed to revise the old rules and incorporate them with the bye-laws and alterations contained in the minutes, and also to increase the amount of entrance fee and subscription. The state of the finances was satisfactory. The report having been adopted, Mr. Molineux was unanimously elected President for the ensuing year, an amendment appointing Mr. Farnworth being withdrawn. Mr. Jenks having retired from the presidential chair in favour of Mr. Molineux, the latter gentleman acknowledged his election, and said that as far as in him lay he would continue to promote the interests of the association. Mr. Farnworth (who was absent) was chosen vice-president; Mr. Barnett was re-appointed trea-

erer, and Mr. John Lester secretary. Thanking the members for their renewed confidence, Mr. Lester explained that he might leave the district before the year had ended, but, he added, that so long as he remained there he would discharge the duties of secretary faithfully and honestly. A committee was appointed to revise the rules, an auditor to yearly audit the accounts, the reading of a valuable paper upon "Coal" was deferred until a subsequent meeting, and the proceedings then terminated.

REPORT FROM MONMOUTH AND SOUTH WALES.

March 25.—Under happier circumstances the present week has, hitherto, been looked upon as the commencement of the holiday season. Good Friday has always been anticipated as a pleasure day, but this year the enjoyment of not a few will have to be very much curtailed. Large as the number of locked out miners and iron-workers is it does not nearly represent all who have been thrown out of employment by the disastrous dispute. There are thousands of people of both sexes, young and old, who are wholly dependent upon the prosperity of the iron and coal trades, and who are now only partially, if at all, employed in the places of business in the different towns of the counties of Glamorgan and Monmouth, and are, therefore, reduced to considerable distress in consequence. The general holiday this year is, consequently, not likely to present the same gay appearance it has on former occasions, and, probably, many of the holidays that are to follow will be similarly circumstanced.

It will be readily inferred from the above remarks that there is no change for the better in the state of things, nor does there appear any brighter prospect. With respect to the Iron Trade, it is very much to be feared that a long period of depression has set in. The present year will, probably, end very little better than it commenced. Although the spring is now at hand, and many ports which have been closed during the winter will re-open, there does not seem to be any indication of orders being placed in the market sufficient to cause anything approaching a brisk trade. American buyers appear to keep aloof altogether from this market, and makers do not know where to look for a demand that will recoup them for the loss of their Transatlantic trade. Even if Russia and the British colonies were to purchase moderately, there would still be a large difference in the quantity of iron sent into the market, for America until a few months ago took on an average about two-thirds of the whole quantity manufactured in the Principality, or from 10,000 to 15,000 tons per month. And this was done when Russia and the Colonies were large purchasers, and, therefore, the void to be filled up is by no means small one. But it cannot be inferred from advices that even the Russian or Colonial markets will be open for even the usual quantities, or that any of the European or Indian customers will be very much in want of supplies. So that, turn wherever we will, the prospect seems almost equally dark and discouraging so far as the iron trade is concerned.

An unexpected turn has been taken by the Coal Trade. When the lock-out was determined upon, it was seriously apprehended that the supplies of coal would be very short, and that as a consequence prices would become very high. The latter consequence was realised for a time, but the reverse of the former is now being experienced. There are comparatively but a few pits at work, and it is needless to say that the output has been less than one-half what it was; yet after a continuation of those circumstances for over two months there is a less active demand now than at the beginning. Colliery proprietors who have kept their men going are actually complaining of finding no little difficulty in procuring buyers for the quantities they send to market. This, however, is not altogether the result of a surplus of supplies, but to the fact that consumers have turned their attention to other quarters owing to the lock-out and the high prices which were at first asked by the non-associated colliery proprietors. Probably whenever operations are again resumed at all the works and pits, it will be some time before buyers will be brought back again. A conference of the associated masters has been held this week, but it is only piecemeal that one can gather what was done. It may be safely said, however, that the change in the general state of trade since the lock-out commenced was seriously discussed, and there is no doubt that whenever the men return to work they will have to go in on a further reduction in the rate of wages. It is also pretty certain that the masters will not re-light many of their blast-furnaces for a long time to come.

The explosion of a boiler has occurred this week at the Landore Tin-Plate Works, and several persons were unfortunately killed and wounded.

The Tin-plate Trade continues in much the same state. There is a steady trade, but without briskness; prices do not vary to any material extent.

WEST MOSTYN COAL AND IRON.—The preference dividend, at the rate of 12 per cent. per annum, has been declared by the West Mostyn Coal and Iron Company (Limited). The differences with the contractors have been arranged, and the works are now making satisfactory progress.

REPORT FROM SCOTLAND.

March 24.—The Warrant Market continued quiet at the end of last week, the price ranging from 72s. to 72s. 9d., the latter being the closing quotation on Friday. On Monday there were some symptoms of an upward movement, but this was checked to a considerable extent by a reduction in the price of several leading brands, and business was done from 72s. to 73s. 1d., closing with buyers at 73s. Yesterday the market has been inanimate, and the prices irregular; 72s. 6d. prompt cash, and 71s. 14 days fixed accepted, closing with buyers at 72s. 3d. cash. To-day business has been done from 72s. 3d. to 71s. 3d., closing at the lower price. The undernoted quotations show a decided reduction in the value of the higher priced brands:—

No. 1.	No. 3.
Glasgow (deliverable alongside). 73s. 6d.—74s. 6d.—72s. 73s.	
Gartsherrie ditto ditto 82 0 76 6	
Coltress ditto ditto 85 6 76 0	
Summerlee ditto ditto 85 0 74 0	
Lanarkshire ditto ditto 84 0 74 0	
Carnbroe ditto ditto 79 0 73 0	
Monkland ditto ditto 74 6 72 6	
Clyde ditto ditto 75 6 73 0	
Govan, at Broxburn, ditto ditto 74 6 73 0	
Calder, at Port Dundas ditto 85 0 74 0	
Glenarnock, at Ardrossan ditto 80 0 72 6	
Eglinton ditto ditto 71 6 69 6	
Dalzellington ditto ditto 71 6 69 6	
Caron, at Grangemouth, selected, ditto 82 6 —	
Shotts, at Leith ditto 84 6 76 0	
Kinnel, at Boness ditto 77 6 71 0	
Bar Iron 8 9 10 —	
Nail rods 9 10 —	

SHIPMENTS.

Week ending March 20, 1874	Tons 10,614
Week ending March 21, 1874	6,816
Increase	3,798
Total increase for 1874	10,499
Imports of Middlesborough pig-iron into Grangemouth:—	
For the week ending March 21, 1874	Tons 3,775
For the week ending March 20, 1874	2,530
Decrease	1,245
Total increase for 1874	6,558

The Pig-iron Market is, unfortunately, at a dead lock again, through a party of dealers succeeding in purchasing the entire stock and imposing their own terms on those who are oversold, instead of carrying over, as is the custom of an open market. With the present small stock, this is a feat which is of easy accomplishment; but it invariably staggers the trade and increases prices, when it does not temporarily suspend operations. Iron is being sold forward (30 days) at 71s.; and special brands have been reduced by makers from 3s. to 1s. 6d. per ton. Pigs are being pressed into store by some makers, this being the best present market for them. For manufactured iron there is only a very limited demand, and the working staff is very greatly reduced, some of the works finding it absolutely necessary to shut their gates. The exports and value are under the numerical returns of last year; and, with the exception of pipeage, all the departments are lifeless. In Motherwell, last Saturday, the hands at the boiler works were reduced, the stock on hand being more than sufficient for present requirements; and little hope was held out of their services being shortly required.

Messrs. Laidlaw, of this city, have closed with the Corporation of Arbroath to supply gas-manufacturing plant, at a cost of 1134.

The demand for Coals is keeping the works moving, with prices at 8s. to 10s. 6d. for house coal, 12s. for steam (burnt) coal, and 22s. for coke—all per ton f.o.b. Broxburn. On the East Coast contracts can be entered at 8s. Burntisland, and 9s. to 9s. 3d. Tayport, both places f.o.b. The shipments of coals from the whole Scotch ports for the week were 39,884 tons, against 23,695 tons in the same week of 1874, which shows fully 16,000 tons in favour of this year. We are informed that the wages of the miners in the Wishaw district are shortly to be reduced to 5s. per day; and that the Fifes masters, owing to the depression, have posted up notices at all the pits, intimating that the reduction of 20 per cent. will be rendered general in a week, which will make the wages there 4s. per day.

PATENT ATMOSPHERIC TRAMWAY ENGINE.—Last week this patent was successfully tested on the Vale of Clyde Tramway Company's line in the presence of a large number of gentlemen interested. The patent may be summarily described as consisting of engines propelled by atmospheric air, which is pumped into six tanks, and the whole are fitted into a frame, upon which it is intended to rest the car, the engines occupying the centre, and the air-tanks the spaces at either end. The floor of the car, the interior of which will be perfectly free from interference, will be about the same height from the ground as in the case of the ordinary omnibus. Besides the general arrangement, the essence of the invention consists in utilising the higher pressure by means of cut-off valves acted upon automatically by the diminishing pressure. The engines are worked by a hand lever, of which there is one at each end of the machine, so that it may always be worked from the end in the direction of which the car is going. The machine is provided with powerful brakes. The air for supplying the tanks will be stored in large receivers stationed at allotted distances along each route, and the process of pumping it from these into the tanks will occupy less than two minutes. The equivalent of 30-horse power can thus be obtained, and it is calculated that the machine will run without re-filling for a distance of four miles. The air-tanks have been tested up to a pressure of about 500 lbs. to the square inch, but it is not intended to use a higher pressure than between 300 lbs. and 400 lbs. On this occasion the engine ran for about 1400 yards, attaining a maximum speed of about 12 miles an hour, under a pressure of only 200 lbs. to the square inch. But the engines during the greater part of the trial were only at half speed. The engines were stopped, reversed, and the machine backed with the greatest facility. The patentee may be congratulated upon the success which has attended the invention: and it is hoped it will be the means of doing away with horse haulage, and rendering the tramways profitable. The engines and other machinery have been constructed for the patented (Mr. Scott-Moncrieff) by Messrs. James Howden and Co., of Glasgow, and present the appearance of substantial workmanship.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week there has been a large business done. In shares of iron and coal companies the changes are:—Benhar, all paid, 1s.; ditto, 3s. paid, 8s. 6d.; Ebbw Vale, 1s.; Fifes, 1s.; and Marbella, 3s.—all lower per share; while Bolckow, Vaughan, A, and Monkland ordinary have improved 1s. and 1s. per share respectively. Merry and Cuninghame have also improved 3s. 6d. per share on the week, the highest and lowest points touched having been 3s. and 3s.; the circular to be issued by the directors is awaited with some interest, and there are some rumours with regard to it of a hardly credible nature. In shares of copper companies, Canadian Copper Pyrites, and Gunnislake (Clitters) have declined about 1s. each; while Glasgow Caradon, all paid; ditto, 1s. paid, and Panulicillo have improved. The chief attention in this department has, however, been paid to the shares of the Tharsis Company, which have been largely dealt in, and are 3s. higher on the week for the all-paid ones, while the 7s. paid are 1s. better; the directors have resolved to recommend to the shareholders at the annual general meeting of the company, to be held on Thursday, 22nd prox., that a dividend at the rate of 25 per cent. per annum be declared from the profits of the company for the year ending Dec. 31, 1874—one-half, or 12s. per cent., to be payable on May 10 next, and the remainder on Nov. 10 following, both free of income tax; and that the balance of 4323. 16s. 3d. be carried forward to the year 1875. In gold and silver shares, Emma has declined 1s., but Javali has improved to a small extent. In oil shares, West Calder has changed hands at 21s. for the 10s. shares, all-paid, and are now buyers at that price; others unaltered. In Miscellaneous very little doing, and prices unaltered. Fronton and Bolivia 2s. shares are 4s. to 6s. A detailed list of the several days' business follows:—

On Thursday last a small business was done. Bolckow, Vaughan, A, lower, at 5s to 5s. Canadian Copper Pyrites, 39s. to 40s. Fifes Coal rather sellers, at 4s. Glasgow Caradon, all paid, done at 22s.; new shares done at 13s. and 13s. 6d. Huntington, 4s. to 4s. 6d. Lochore and Capledrae, 7s. to 8s. Merry and Cuninghame opened at 3s.; but improved, closing 3s. 6d. to 3s. 7s. Tharsis dull, done from 23s. to 23s. 1s., closing 23s. 1s. to 23s. 16s. Young's Paraffin done at 6s. 1s. 16s. and 6s. closing sellers at that price, buyers at 5s. 16s. West Calder Oil, shares of 10s. fully paid, changed hands at 21s., closing 1s. to 1s. 16s. Scottish Wagon all paid, firm at 11s. 16s. 12s. 16s.

On Friday a large business was done. Armiton done at 7s. Benhar (3s. paid) done at 4s and 4s. Bolckow, Vaughan, A, done at 5s, closing 5s. to 5s. Canadian Copper Pyrites opened at 39s., but being pressed for sale declined to 38s. 6d., closing 38s. to 38s. 6d. Ebbw Vale lower, at 19s. to 19s. 6d. Dunsley Wheal Phoenix weak, at 3s. to 3s. 6d. Intimation is given that the fourth ordinary general meeting of the members of this company will be held on Wednesday, the 31st inst., for the purpose of receiving statement of accounts and report by the directors, &c. The balance-sheet and statement of receipts and expenditure made up to Dec. 31st are issued along with this notice. The company has 1057. 4s. 9d. cash in bank and secretary's hands. Glasgow Caradon, 22s. 6d. to 23s. 6d. Huntington done at 4s., closing 3s. 6d. to 4s. 6d. Javali, 12s. 6d. to 13s. 6d.; Merry and Cuninghame opened at 3s.; but advanced to 3s. 6d., closing sellers at that price—buyers at 3s. Monkland ordinary done at 6s. 6d. and 6s. 6d., closing 6s. to 6s. 1s.; guaranteed preference, 7s. to 7s. Panulicillo better, at 1s. to 1s. 16s. Shotts Iron, 7s. to 7s. 15s. 23s. 1s. 23s. 6d. to 23s. 16s. Tharsis opened at 23s. 16s. and 23s. 16s. 17s. It is said these shares are much oversold. New shares done at 16s., closing 16s. 15s. 16s. to 16s. 17s. 16s. Young's Paraffin done at 6s. 1s. 16s. and 6s. 1s. 16s. Scottish Wagon steady, at 11s. 16s. and 12s. 16s. Fortescue done at 10s. 6d. paid, a call of 1s. 6d. per share having been made at the meeting on 12th inst.; the shares are unchanged at 3s. 6d. to 4s. 6d. The sale of ore by this company on 18th inst. realised 894. for 180 tons, or an average of 9s. 3d. per ton.

On Saturday a good business was done. Benhar, 3s. paid, 8s. 10s. 11s. 12s. 13s. 14s. 15s. 16s. 17s. 18s. 19s. 20s. 21s. 22s. 23s. 24s. 25s. 26s. 27s. 28s. 29s. 30s. 31s. 32s. 33s. 34s. 35s. 36s. 37s. 38s. 39s. 40s. 41s. 42s. 43s. 44s. 45s. 46s. 47s. 48s. 49s. 50s. 51s. 52s. 53s. 54s. 55s. 56s. 57s. 58s. 59s. 60s. 61s. 62s. 63s. 64s. 65s. 66s. 67s. 68s. 69s. 70s. 71s. 72s. 73s. 74s. 75s. 76s. 77s. 78s. 79s. 80s. 81s. 82s. 83s. 84s. 85s. 86s. 87s. 88s. 89s. 90s. 91s. 92s. 93s. 94s. 95s. 96s. 97s. 98s. 99s. 100s. 101s. 102s. 103s. 104s. 105s. 106s. 107s. 108s. 109s. 110s. 111s. 112s. 113s. 114s. 115s. 116s. 117s. 118s. 119s. 120s. 121s. 122s. 123s. 124s. 125s. 126s. 127s. 128s. 129s. 130s. 131s. 132s. 133s. 134s. 135s. 136s. 137s. 138s. 139s. 140s. 141s. 142s. 143s. 144s. 145s. 146s. 147s. 148s. 149s. 150s. 151s. 152s. 153s. 154s. 155s. 156s. 157s. 158s. 159s. 160s. 161s. 162s. 163s. 164s. 165s. 166s. 167s. 168s. 169s. 170s. 171s. 172s. 173s. 174s. 175s. 176s. 177s. 178s. 179s. 180s. 181s. 182s. 183s. 184s. 185s. 186s. 187s. 188s. 189s. 190s. 191s. 192s. 193s. 194s. 195s. 196s. 197s. 198s. 199s. 200s. 201s. 202s. 203s. 204s. 205s. 206s. 207s. 208s. 209s. 210s. 211s. 212s. 213s. 214s. 215s. 216s. 217s. 218s. 219s. 220s. 221s. 222s. 223s. 224s. 225s. 226s. 227s. 228s. 229s. 230s. 231s. 232s. 233s. 234s. 235s. 236s. 237s. 238s. 239s. 240s. 241s. 242s. 243s. 244s. 245s. 246s. 247s. 248s. 249s. 250s. 251s. 252s. 253s. 254s. 255s. 256s. 257s. 258s. 259s. 260s. 261s. 262s. 263s. 264s. 265s. 266s. 267s. 268s. 269s. 270s. 271s. 272s. 273s. 274s. 275s. 276s. 277s. 278s. 279s. 280s. 281s. 282s. 283s. 284s. 285s. 286s. 287s. 288s. 289s. 290s. 291s. 292s. 293s. 294s. 295s. 296s. 297s. 298s. 299s. 300s. 301s. 302s. 303s. 304s. 305s. 306s. 307s. 308s. 30

MARCH 27. 1875.

ould be counted on, if carried on with good judgment and energy, water and railway accommodation are good; but good business judgment and sufficient capital are very important elements in calculating such chances. Additional area can be obtained, if judged necessary, in enlarging the works. We should greatly rejoice if these speculations and probabilities should be ripened into facts by the enterprise of the anticipated capitalists.

Free miners' rights are much valued just now, and the Gaveler's Office shows signs of life, several gales being now advertised for granting to certain applicants, but the agitation for protecting those rights against interference by the proposed bill now before Parliament seems to lack the necessary extent and earnestness to carry it to a successful issue. The last year's Committee of Enquiry at St. Stephen's evidently started and carried on their labours intending to arrive at certain conclusions, which they did arrive at. This was clear to any person of acumen and discernment carefully reading the examination of the witnesses called before it. They meant to elicit certain evidence and arrive at certain conclusions, which they successfully accomplished, and hence the character of the bill now before the House. Little that is new in prices and output of coal has occurred since our last report. The times portend, however, that some important changes are in the not very distant future, when the railways within the Forest, connecting the district with the outer world all round, are completed, and sundry mineral properties get into course of development. But at present matters are not in a satisfactory condition, but the completion of the local system of railways will, undoubtedly, be an important step towards the desired end. We forbear, however, to enlarge upon these opening theories, as we look forward to many opportunities of taking up local questions as they approach or come to the front.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

March 25.—The Iron Trade of Derbyshire has undergone little change of late. There is no decrease with respect to the number of furnaces in blast. In manufactured iron a fair business continues to be done, especially in pipes and other castings, as well as in malleable material. The demand for house coal has been well kept up, although merchants are only purchasing for immediate requirements, expecting that prices will fall, as they generally do when the summer approaches. A large business is being done at Langley Mill to the south, and the new line of railway is making considerable progress, and that portion between Nottingham and the place named it is expected will be open in about four months from the present time. Advantage is already being taken of it, and several extensive coal fields will be opened out on its route. The Midland is busily engaged in giving increased siding and other railway accommodation to several collieries, with a view to maintain its present position of superiority as the largest purveyor of coal to the metropolis of any line having direct access there.

Trade in Sheffield appears to be on the mend in several branches, and there is more doing in Bessemer rails than for a considerable time past. A movement is now on foot by a large number of men engaged in the steel trade to do away with contractors, so that the general workmen shall be employed direct by the masters instead of for those who undertake work at a certain price and employ other men to do it. The system is certainly not a good one, for those as a rule who do the least work get the most money as a rule. The malleable works have been going on very well, and the high reputation of such a firm as Crowley and Son ensure a large amount of work of a varied character. The firm last year became famed at several agricultural gatherings for a patent chaff-cutter and a patent lawn-mower, both of which carried all before them, not only for workmanship but for general superiority over all others. In South Yorkshire the business doing in coal has been very fair for the season; but a good deal of a very inferior quality is being sent to the metropolis, by which a large number of wagons are delayed, as it does not command a ready sale. Silkstones, however, have been in tolerably good request for the South, and a rather steady business has been done in engine fuel for Lancashire and Cheshire, a good deal going to the salt works in the last-named county. It is said that the Shirland Colliery will shortly be transferred to the South Yorkshire Miners' Association, who paid a deposit on it last year, but some difficulties with respect to the leases prevented the completion of the sale.

The collapse of the Silkstone Fall Colliery, and the announcement that the company had discovered that they had lost nearly all their capital, has been the topic of the week. Persons connected with mining operations in the Barnsley district were not in the slightest degree surprised, for it was what all knew would be the certain result. Indeed, it was a mere question of time. But the fate of Silkstone Fall will be that of more than one colliery in the same district is the fate of some of the most knowing of our coalowners and managers. The wages question, or rather the reduction of wages agreed upon by masters and representatives of the men, is likely to be fully accomplished without any trouble. There is, however, an extra reduction proposed to be made at the Monk Bretton Colliery, which is likely to lead to a suspense of work. The men have been receiving much higher wages than those at any other colliery working the same seam, and refuse to be put on an equality.

THE IRON AND STEEL INSTITUTE.

THE ANNUAL GENERAL MEETING will be HELD (by permission of the Council of the Institution of Civil Engineers) at No. 25, Great George-street, Westminster, on WEDNESDAY, THURSDAY, and FRIDAY, May 5th, 6th, and 7th. The Council of the Institute are open to receive communications, bearing upon the Iron and Steel Trades, from gentlemen desirous of submitting papers to the above-named meeting. Proposal forms received up to the middle of April will be in time for the election of members at the annual meeting.

The last issue of the "Journal of the Institute" can be obtained from the publishers, Messrs. Spon, 48, Charing Cross, S.W., price 7s. 6d.

JNO. JONES, General Secretary.

7, Westminster Chambers, London; and Royal Exchange, Middlesbrough.

TO CAPITALISTS.

THE OWNER of a VALUABLE COLLIERY, partly developed, is open to treat for the ENTIRE SALE, or to JOIN with others in REGISTERING IT as a COMPANY. Principals or their solicitors only treated with.

Address, "S. P." MINING JOURNAL Office, 26, Fleet-street, E.C.

COLLIERY NEAR SHEFFIELD.

A VALUABLE COAL FIELD, comprising about TWO HUNDRED AND FIFTY ACRES of UNGOT COAL of the BARNESLEY TOP HARD SEAM, 5 feet thick, and about 70 yards from the surface, with FOUR SHAFTS ready sunk. Can be secured on very favourable terms. Distance about eight miles from Sheffield, with excellent communication by canal, rail, and road.

For further particulars, and to treat, apply to BROOMEHEAD, WIGHTMAN, and MOORE, Solicitors, Bank Chambers, George-street, Sheffield.

PIT SINKING, WINDING COAL, &c.

FOR SALE, and ready for immediate delivery, 14, 18, 25, and 35 horse power HORIZONTAL, PORTABLE, SEMI-PORTABLE, and VERTICAL STEAM ENGINES, with link motion reversing gear, winding drum, pumping gear, &c., complete.

Also, MORTAR MILLS, COMBINED ENGINES and MORTAR MILLS, SAW TABLES, PIT PULLEYS, &c., &c.

FOR SALE, An excellent second-hand PORTABLE STEAM ENGINE; and

1/2 ft. PAN MORTAR MILL. Apply to

BARROWS AND STEWART, ENGINEERS, BANBURY.

LATEST EDITION OF MITCHELL'S ASSAYING.

Just published, in 8vo., with 199 woodcuts, price 31s. 6d.

A MANUAL OF PRACTICAL ASSAYING.

By JOHN MITCHELL, F.C.S.

Fourth Edition, in which are incorporated all the recent valuable improvements in Assaying made in this country and abroad, including Volumetric and Colorimetric Assays, and the Blowpipe Assays.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

SIX ELEMENTARY LECTURES ON MINERALOGY,

ADAPTED TO A JUVENILE AUDIENCE,

With a View to Facilitate the Study of Geology, will be given by J. TENNANT,

F.G.S., Professor of Mineralogy at King's College, Mineralogist to Her Majesty, &c.

at his residence, 149, Strand, W.C., on March 29, 30, 31, and April 1, 2, 3, at

7 A.M., and Three P.M.—Terms: Half-a-guinea for the course.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

For the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

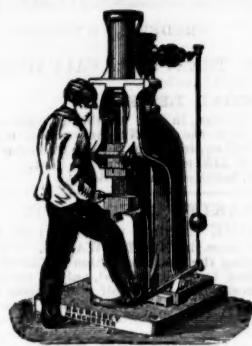
Edited and for the most part re-written by WILLIAM CROOKES, F.R.S., &c.

London : LONGMANS, GREEN, and Co., Paternoster-row.

B. & S. MASSEY, OPENSHAW, MANCHESTER.

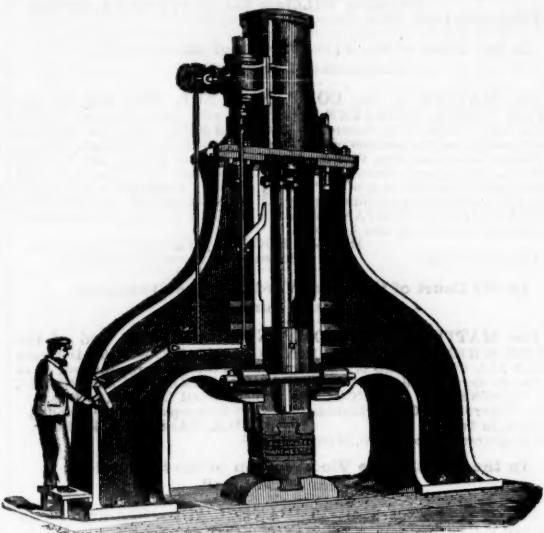
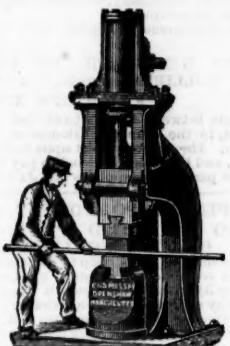
PRIZE MEDALS AWARDED:—Paris, 1867 Havre, 1868; Highland Society, 1870; Liverpool, 1871; Moscow, 1872; Vienna, 1873.

Patentees and Makers of Double and Single-acting STEAM HAMMERS of all sizes, from $\frac{1}{2}$ cwt. to 20 tons, with self-acting or hand motions, in either case giving a perfectly DEAD BLOW, while the former may be worked by hand when desired. Large Hammers, with Improved Framing, in Cast or Wrought Iron. Small Hammers, working up to 500 blows per minute, in some cases being worked by the Foot of the Smith, and not requiring separate Driver.



General Smithy Hammer.

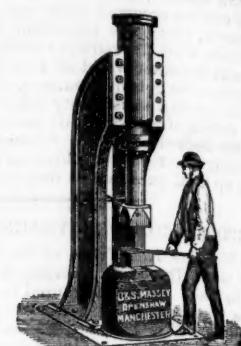
From 60 to 100 Steam Hammers and Steam Stamps may usually be seen in construction at the Works.



Steam Hammer for Heavy Forging.



Special Steam Stamp.



General Smithy Hammer.

SPECIAL STEAM STAMPS, of great importance for Forging, Stamping, Punching, Bolt-making, Bending, &c. STEAM HAMMERS for Engineers, Machinists, Ship-builders, Steel Tilters, Millwrights, Coppersmiths, Railway Carriage and Wagon Builders, Colliery Proprietors, Ship Smiths, Bolt Makers, Cutlers, File Makers, Spindle and Flyer Makers, Spade Makers, Locomotive and other Wheel Makers, &c.; also for Use in Repairing Smithies of Mills and Works of all kinds; for straightening Bars, bending Cranks breaking Pig-iron, &c.

DUNN'S ROCK DRILL,

AND AIR COMPRESSORS,

FOR DRIVING BED ROCK TUNNELS, SINKING SHAFTS, AND PERFORMING OPEN FIELD OPERATIONS,

IS THE

CHEAPEST, SIMPLEST, STRONGEST, & MOST EFFECTIVE DRILL IN THE WORLD.

OFFICE, —193, GOSWELL ROAD (NEAR SPENCER STREET), LONDON, E.C.

BARROWS

AND

STEWART,

Engineers,

BANBURY,

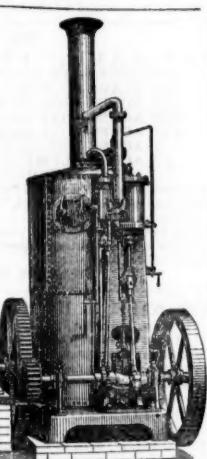
MANUFACTURE

Semi-

Portable

AND

Vertical



STEAM ENGINES, FOR PIT SINKING WINDING COAL, PUMPING, &c.

Also COMBINED MILLS and ENGINES for Grinding Slag, Sand, Mortar, &c.

Specifications and prices on application.

SOLID DRAWN BRASS BOILER TUBES

FOR LOCOMOTIVE AND MARINE BOILERS,

EITHER

MUNTZ'S OR GREEN'S PROCESS

MUNTZ'S METAL COMPANY (LIMITED),

FRENCH WALLS,

NEAR BIRMINGHAM.

MINERS

PRICKERS AND STEMMERS

OF

MUNTZ'S METAL.

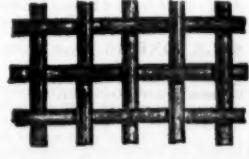
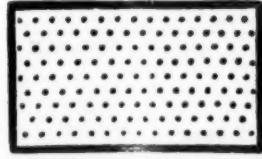
ACCORDING TO THE NEW MINES REGULATION ACT. BEST KNOWN MATERIAL.

MUNTZ'S METAL COMPANY (LIMITED),

FRENCH WALLS,

NEAR BIRMINGHAM.

STRONG WIREWORK.



STRONG WIREWORK, the cross wires equally bent; also BEST STAMP GRATES, both of iron and copper, and punched copper plates.

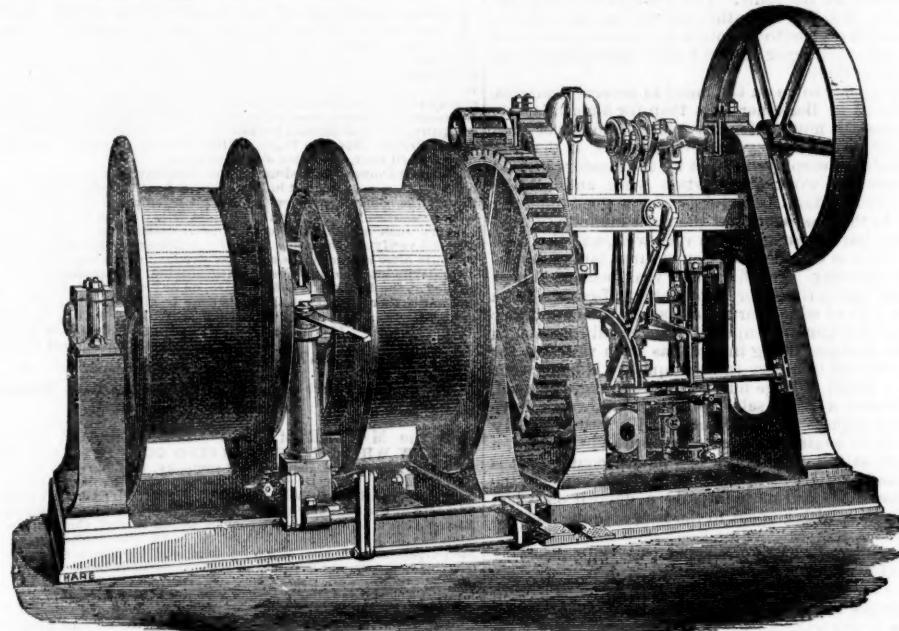
DITTO TUBBED. All the above promptly supplied at

W. ESCOTT'S MINING MATERIAL DEPOT, TAVISTOCK, DEVON.

Just published, Free Edition.

GUIDE TO HEALTH; or, ADVICE AND INSTRUCTIONS FOR THE CURE OF NERVOUS DEBILITY.—A New Medical Work on the Treatment of Local Debility, Consumption, Loss of Memory, Physical Depression, Indigestion, and all Diseases resulting from loss of nerve power. Illustrated with cases and testimonies. Sent free for two stamps.—Dr. SMITH will, for the benefit of country patients, on receiving a description of their case, send a confidential letter of advice.—Address, Dr. H. SMITH, Burton-crescent London, W.C.

I. G. BASS, 18, BOW STREET, SHEFFIELD.



IMPROVED DESIGN of Engine for HAULING, for use with either Steam or Compressed Air.

Takes less room, and can be supplied for less money, than any other Engine of same power.

May also be had with single drum for winding.

S. C. HEMMING & CO., 25, Moorgate-street, London,

THE ONLY MEDAL AWARDED AT THE
1873 VIENNA EXHIBITION FOR GALVANIZED IRON



Roofing & Galvanised Iron.

Iron Buildings of every description sent to all parts of the World, especially constructed for Hospitals.

TO COLLIER PROPRIETORS, MINING ENGINEERS, &c.

HADFIELD'S

Steel Colliery Wheels

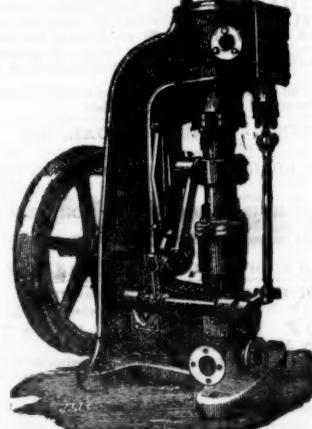
WITH PATENT FITTED AXLES AND PEDESTALS.



Hydraulic Cylinders, Pinions, Ship-propellers, Railways, Skates for Ploughs, &c.

Also, Cross-heads, Axle-boxes, Horn-blocks, Plough-hares, Cultivators, Reaping Machine Fingers, &c.

MAKERS OF WINDING ENGINES, VERTICAL DONKEY PUMPS, &c.



JOHN WITHINSHAW & CO.

BIRMINGHAM ENGINE WORKS

BIRMINGHAM.

Stock Sizes, from 10 to 30 inch cylinder.

MINING PROSPECTUSES AND ANNOUNCEMENTS OF PUBLIC COMPANIES should be inserted in the BARNSTAPLE TIMES, published every Tuesday, and in the DEVON POST, published every Saturday, as these papers circulate largely throughout Devon and Cornwall, where many thousands of investors reside. Legal and Public Companies' advertisements, 6d. a line each insertion; Trade and Auctions, 4d. a line; Wanteds, &c., 20 words, 1s. Published by J. B. JONES, Bideport-street, Barnstaple, Devon to whom all orders, post or telegraph should be sent.

MARCH 27, 1875.]

DYNAMITE

FOR BLASTING PURPOSES, can now be supplied in packages, containing 50 lbs. each, for export to any part of the World.

Nobel's Dynamite, or Safety Giant Blasting Powder,

Is the CHEAPEST and MOST POWERFUL EXPLOSIVE for every kind of MINING and QUARRYING OPERATIONS; for blasting in hard or soft, wet or dry ROCKS; for clearing land of TREE ROOTS and BOULDER STONES; for rending massive BLOCKS of METAL; for SUBAQUEOUS and TORPEDO purposes; and for recovering or clearing away of WRECKS, &c.

ITS SAFETY is evidenced by the total ABSENCE OF ACCIDENTS in transit and storage; it is insensible to heavy shocks,

its GIANT POWER being only fully developed when fired with a powerful percussion detonator, and hence its great safety.

As a SUBSTITUTE FOR GUNPOWDER its advantages are the GREAT SAVING OF LABOUR, rapidity and INCREASE OF WORK done, FEWER and smaller BORE-HOLES required, greater depth blasted, safety in use NO DANGER FROM TAMING, absence of smoke, unaffected by damp, &c.

For information, apply to—

BRITISH DYNAMITE COMPANY (LIMITED), GLASGOW;

OR AT THE

London Export Office, 85, GRACECHURCH STREET, LONDON, E.C.

THE DARLINGTON ROCK BORER.

PATENTED IN GREAT BRITAIN, PRUSSIA, FRANCE, AND VARIOUS CONTINENTAL COUNTRIES.

Makes 300 to 1000 Blows per Minute, as may be required without Valve or Complicated Gear.

DRIVEN WITH STEAM OR COMPRESSED AIR.

SPECIALLY SUITABLE FOR RAILWAY, QUARRY, AND MINE WORK.

For price and particulars, apply to—

JOHN DARLINGTON,

2, COLEMAN STREET BUILDINGS, MOORGATE STREET, LONDON

MINING MACHINERY AND TOOLS.

THE TUCKINGMILL FOUNDRY COMPANY,

85, GRACECHURCH STREET, LONDON, E.C. WORKS: TUCKINGMILL.

MANUFACTURERS of every description of MINING MACHINERY, TOOLS, MILLWORK, PUMPING, WINDING, & STAMPING ENGINES.

SOLE MAKERS OF

BORLASE'S PATENT ORE-DRESSING MACHINES AND PULVERISERS.

PRICE LISTS CAN BE HAD ON APPLICATION, AND

SPECIAL QUOTATIONS WILL BE GIVEN UPON INDENTS AND SPECIFICATIONS.

TUCKINGMILL FOUNDRY AND ROSEWORTHY HAMMER MILLS

TUCKINGMILL, CORNWALL, AND 85, GRACECHURCH STREET, LONDON, E.C.

IMPORTANT TO STEAM USERS.

THE BARROW SHIPBUILDING COMPANY (LIMITED), having purchased the Patents and Business of the

"HOWARD SAFETY BOILER,"

Desire to call the attention of Steam Users to some important improvements recently introduced in these Boilers, by which any points of objection to previous designs are entirely overcome, whilst the valuable principle, so widely recognised, is retained.

In the improved Boiler there is neither welding, screwing, nor rivetting, and the whole of the interior is readily exposed to view and cleaned out. The more simple construction of the improved Boilers admits also of a substantial reduction in price.

Twenty of the Howard Safety Boilers, of 60-horse power each, are in use at Barrow, and altogether about 800 are successfully at work. The Boilers may also be seen at work at Messrs. J. and F. Howard's, Britannia Ironworks, Bedford.

FOR FURTHER PARTICULARS, APPLY TO

THE BARROW SHIPBUILDING COMPANY, LIMITED,
BARROW-IN-FURNESS, LANCASHIRE.

CHAPLIN'S PATENT STEAM ENGINES AND BOILERS.

PRIZE MEDAL, INTERNATIONAL EXHIBITION, 1862.

STATIONARY ENGINES,
From 1 to 30-horse power. No building required.

STEAM CRANES,
1½ to 30 tons. For wharf or railway.

HOISTING ENGINES.
10 cwt. to 15 tons. With or without jib.

TRACTION ENGINES.
6 to 27-horse power. Light and heavy.

DONKEY FEED-ENGINES.

The ORIGINAL Combined Vertical ENGINES and BOILER introduced by Mr. CHAPLIN, in 1855.
EACH CLASS KEPT IN STOCK FOR SALE OR HIRE.



STATIONARY ENGINE.

CONTRACTORS' LOCOMOTIVES,
6 to 27-horse power. For steep inclines and curves.

SHIPS' ENGINES,
Hoisting, cooking, and distilling. Passed for
half-water.

MARINE ENGINES AND BOILERS,
For light screw and paddle steamers, ships
boats, &c.

STEAM WINCHES,
With or without boilers and connections.

DUPLEX PRESSURE FANS.

WIMSHURST, HOLICK, AND CO., ENGINEERS,
WORKS: REGENT'S CANAL DOCK, 602, COMMERCIAL ROAD EAST,
LONDON, E.

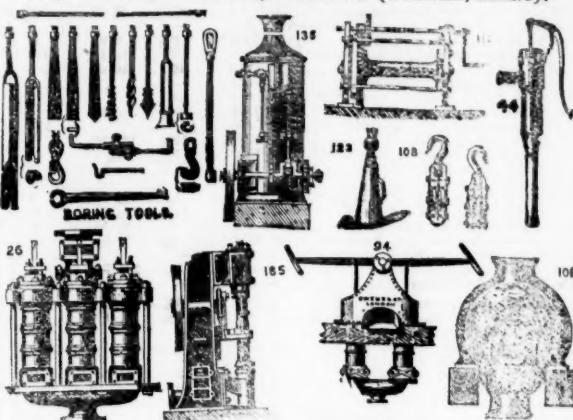
CITY OFFICE: 34, WALBROOK, CANNON STREET, E.C.

S. OWENS AND CO.,

Hydraulic and General Engineers,
WHITEFRIARSSTREET, FLEETSTREET, LONDON

AND AT

195, BUCHANAN STREET, GLASGOW (W. HUMPHREY, AGENT).



MANUFACTURERS OF

BORING TOOLS, for testing ground for Minerals. Bridge foundations, Artesian Wells, &c., to any depth.
No. 26.—Treble Barrel and other Deep Well Pumps.
No. 136.—Vertical and other Portable Steam Engines.
No. 185.—Horizontal and Vertical Steam Pumping Engines.
No. 112.—Single and Double-purchase Crab Winches.
No. 108.—Pulley Blocks of all sizes.
No. 123.—Bottle and other Lifting Jacks.
No. 94.—Double-barrel Pumps, for Mine or Quarry use.
No. 44.—Portable Wrought-iron Pumps, ditto ditto
No. 102.—Bernay's Patent Centrifugal Pumps, of all sizes.

ALSO EVERY OTHER DESCRIPTION OF

HYDRAULIC AND GENERAL MACHINERY,

COMPRISED

TURBINES, WATER WHEELS, WIND ENGINES,
THE HYDRAULIC RAM, FIRE ENGINES, &c.

Catalogues and Estimates on application.

ASHWORTH'S IMPROVED
STEAM RAM PUMPS.

AWARDED

First Prize
MEDALS

AT

MIDDLETON,

WORSLEY,

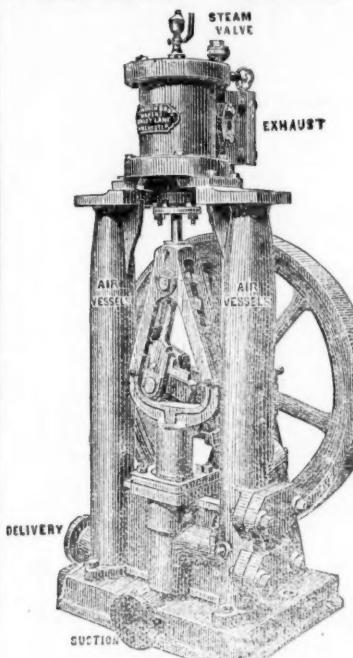
OLDHAM,

AND

MANCHESTER AND
LIVERPOOL SHOWS,

September, 1874,

For Neatness,
Simplicity,
and Efficiency.



Useful to Mill-owners,
Colliery Proprietors,
Chemical Works,
Paper Works, &c.

Single & Double
RAM PUMPS
of all sizes.

Full particulars on
application.

ASHLEY LANE MANCHESTER

Now ready, price 3s., by post 3s. 3d., Fifth Edition: Fifteenth Thousand Copies,
much improved, and enlarged to nearly 300 pages.

HOPTON'S CONVERSATIONS ON MINES, between Father and
Son. The additions to the work are near 80 pages of useful information,
principally questions and answers, with a view to assist applicants intending to
pass an examination as mine managers, together with tables, rules of measurement,
and other information on the moving and propelling power of ventilation, a
subject which has caused so much controversy.

The following few testimonials, out of hundreds in Mr. Hopton's possession,
speak to the value of the work:—

"The book cannot fail to be well received by all connected with collieries."—*Mining Journal*.

"Such a work, well understood by miners, would do more to prevent colliery
accidents than an army of inspectors."—*Colliery Guardian*.

"Its contents are really valuable to the miners of this country."—*Miners Conference*.

"The work is replete on the subject of underground management."—*M. Baines*,
Colliery Proprietor.

"I have works priced £4 that do not contain the same information."—*W. W. Kenrick*, Colliery Viewer.

"I have had 20 years' management. It is the best work I ever read, and deserve
to be circulated in every colliery district."—*Jos. Eames*.

London: MINING JOURNAL Office, 26, Fleet-street; and to be had of all book-sellers.

Second Edition. Just published, price 8s. 6d.

A NEW GUIDE TO THE IRON TRADE
OR, MILL-MANAGERS' AND STOCK-TAKERS' ASSISTANT:
Comprising a Series of New and Comprehensive Tables, practically arranged to
show at one view the Weight of Iron required to produce Boiler plates, Sheet-iron,
and Flat, Square, and Round Bars, as well as Hoop or Strip Iron of any dimensions.
To which is added a variety of Tables for the convenience of Merchants
including a Russian Table. By JAMES ROSE,

OPINIONS OF THE PRESS.

"The Tables are plainly laid down, and the information desired can be instantly
obtained."—*Mining Journal*.

"The work is the result of much labour, and is decidedly valuable."—*Engineer*.

"By its use many hours time spent in tedious calculations will be saved and
many very serious errors avoided."—*Wolverhampton Chronicle*.

"900 copies have been ordered in Wigan alone, and this is but a tithe of those to
whom the book should command itself."—*Wigan Examiner*.

To be had on application at the MINING JOURNAL Office, 26, Fleet-street, London.

ACCIDENTS WILL HAPPEN!
AGAINST ACCIDENTS OF ALL KINDS,

RAILWAY PASSENGERS' ASSURANCE COMPANY,
THE OLDEST AND LARGEST ACCIDENTAL ASSURANCE COMPANY.

HON. A. KINNAIRD, M.P., Chairman.

PAID-UP CAPITAL AND RESERVE FUND £160,000.

ANNUAL INCOME, £180,000.

COMPENSATION PAID, £915,000.

Bonus allowed to Insureds of Five Years' standing.

Apply to the Clerks at the Railway Stations, the Local Agents, or—

44, CORNHILL, and 10, REGENT STREET, LONDON.

WILLIAM J. VIAN, Secretary.

THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares	Mines	Paid	Last Pr.	Clos. Pr.	Total divs.	Per share	Last paid
16,000 Alderley Edge, c, Cheshire*	10 0 0	—	3 1/2	2 1/2	3	0 2 0	0 2 0
50000 Bampfylde, c, i, m.s., Devon*	1 0 0	—	—	—	—	—	Jan. 1873
55000 Blaen Caeau, s-i, Cardigan* (24 sh.)	3 10 0	—	—	—	—	—	—
200 Bedlack, t, c, St. Just*	116 5 0	—	45	40 45	619 15 0	5 0	Aug. 1872
10000 Bronifoyd, s-i, Cardigan	1 7 6	—	—	—	—	—	—
4000 Brookwood, c, Buckfastleigh	1 16 0	—	5 1/2	4 1/2	5	3 6 0	0 4 0
8245 Cargill, s-i, Newlyn*	5 4 5	—	1 1/2	1 1/2	—	4 16 3	0 12 6
6400 Cashwell, t, Cumberland*	3 10 0	—	—	—	—	—	Oct. 1872
10000 Carn Brea, c, Illogan*	35 0 0	—	45	47 49	308 0 0	1 0	Aug. 1873
6000 Clif. & Jane, t, Penrhyn-deneath	5 0 0	—	—	—	—	—	Feb. 1874
2450 Clog's Kitchen, t, Illogan*	20 14 9	—	5 1/2	8 9	11 17 0	0 7	June 1873
10240 Devon Gt. Consols, c, Tavistock* §	1 0 0	—	2	1 1/2	1 1/2	116 10 0	0 12 0
4216 Dolcoath, c, i, Camborne	10 14 10	—	48	48 48	106 6 8	0 10 0	Mar. 1875
5500 Drake Walls, t, c, Calstock	—	—	—	—	—	—	—
14,000 East Baleswiden, t, Sancreed*	1 0 0	—	—	—	—	8 2 0	0 7 0
6144 East Cardon, c, St. Cleer*	2 14 6	—	1 1/2	1 1/2	—	0 2 11 0	0 5 0
300 East Darren, t, Cardiganshire	82 0 0	—	—	—	—	224 10 0	1 0 0
6700 East Pool, t, c, Illogan*	5 9 9	—	12 1/2	12 1/2	13 11 3	0 3 0	May 1873
1906 East Wheal Lovell, t, Wendron*	5 19 0	—	7 1/2	6 1/2	7	20 7 6	0 7 6
5000 Exmouth, t, c, Christow	0 7 6	—	—	—	—	0 1 0	0 1 0
2800 Foxdonet, t, Isle of Man*	25 0 0	—	—	—	—	80 15 0	0 10 0
40000 Glasgow Carr., c [30,000 £1 p., 10,000 18s. p.]	—	—	1 1/2	1 1/2	—	—	Sept. 1872
15,000 Great Laxey, t, Isle of Man	4 0 0	—	11 1/2	11 1/2	12 1/2	8 7 4	0 1 0
25000 Great West Vale, t, Cardigan*	2 0 0	—	5 1/2	5 1/2	—	0 2 0	0 1 0
5908 Great Wheal Vor, t, Helston*	40 15 0	—	24	24	15 19 6	0 2 0	June 1872
6400 Green Hurlth, t, Durham	0 6 0	—	—	—	—	1 12 0	0 4 0
20000 Grogwinion, t, Cardigan*	2 0 0	—	3 1/2	3 1/2	—	2 0 0	0 1 4
9830 Gunnislake (Clitters), t, c	5 5 0	—	—	—	—	0 2 3	0 1 0
102 Herodotus, t, near Liskeard*	8 10 0	—	3 1/2	3 1/2	—	17 9 0	0 6 0
18000 Killington Downs, c, Calstock* (21 sh.)	2 5 0	—	1 1/2	1 1/2	—	82 5 0	0 15 0
25000 Killase, t, Tipperary	1 0 0	—	—	—	—	4 3 0	0 5 0
400 Lisburne, t, Cardiganshire	18 15 0	—	—	—	—	5 0 11 0	0 0 0
5120 Lovell, t, Wendron	0 10 0	—	—	—	—	564 10 0	1 0 0
11000 Melindur Valley, t, Cardigan*	2 0 0	—	3	2 1/2	3	0 17 6	0 1 0
9000 Minera Mining Co., t, Wrexham*	5 0 0	—	10	7 1/2	10	11 17 2	0 2 0
20000 Mining Co. of Ireland, c, l, l*	7 0 0	—	—	—	—	8 0 8	0 3 0
12000 North Hendre, t, Wales	2 10 0	—	—	—	—	0 17 6	0 2 0
2000 North Levant, t, c, St. Just*	12 2 0	—	3	2 1/2	2 1/2	4 13 0	0 12 0
27855 Old Treburregt, t, l, ordinary shares	1 0 0	—	—	—	—	0 9 0	0 9 0
9255 Old Treburregt, t, l, 10 per cent. pref.	0 10 0	—	2 1/2	2 1/2	—	0 1 4 5	0 0 0
5694 Pedan-drea, t, Redruth*	9 2 0	—	4 6	4 6	—	0 5 0	0 5 0
5000 Penhalla, t, St. Agnes	3 0 0	—	2	1 1/2	2	3 9 6	0 2 0
45782 Penstruthal, t, c, Gwenapn.	2 0 0	—	5 1/2	5 1/2	—	0 2 0	0 1 0
6000 Phoenix, t, c, Linkinhorne*	4 13 4	—	4	3 3 3	—	39 19 10	0 4 0
1772 Polberro, t, St. Agnes	15 0 0	—	—	—	—	1 12 6	0 5 0
18000 Prince Patrick, t, Holywell	1 0 0	—	—	—	—	0 9 0	0 2 0
1120 Providence, t, Llanlant*	16 18 7	—	5	4 4 4	—	104 12 6	0 10 0
2000 Queens, t, Holywell	2 0 0	—	—	—	—	0 2 0	0 2 0
12000 Roman Gravels, t, Salop*	7 10 0	—	12 1/2	12 1/2	—	4 10 6	0 8 0
10000 Shelton, c, t, St. Austell	1 5 0	—	—	—	—	0 1 0	0 1 0
812 South Cardon, c, St. Cleer	1 5 0	—	105	97 1/2	102 1/2	719 0 0	0 2 0
6000 South Carr, t, c, Illogan*	2 1 6	—	1 1/2	1 1/2	—	0 10 0	0 2 6
6000 South Darren, t, Cardigan*	8 6 6	—	—	—	—	1 1 6	0 1 6
10000 So. Pr. Patrick, t, l, (8000 sh. issued)	1 0 0	—	—	—	—	0 4 0	0 2 0
8771 St. Just Amalgamated, t*	3 10 0	—	—	—	—	0 9 0	0 4 0
12000 Tankerville, t, Salop*	6 0 0	—	10 1/2	10 1/2	—	3 8 0	0 6 0
6000 Tincroft, c, t, Pool, Illoganj	9 0 0	—	24	22 1/2	25	47 18 6	0 5 0
15600 Tretol, t, i, Bodmin	2 0 0	—	—	—	—	0 1 0	0 1 0
47000 Trumpet Consols, t, Helston*	7 10 0	—	1	3 1/2	1	9 11 0	0 10 0
18000 Van, t, Llandilos*	4 5 0	—	24	22 24	—	13 19 6	0 10 0
5000 W. Chilverton, t, Perranzabuloe*	11 10 0	—	3 1/2	4 4 4	—	52 10 0	0 5 0
512 West Tregoth, c, Redruth	95 10 0	—	47 1/2	46 46	—	4 15 0	1 5 0
2048 West Wheal Frances, t, Illogan	27 3 9	—	9 1/2	9 10	—	3 12 6	0 5 0
512 Wheal Bassett, t, Illogan	5 2 6	—	10	5 7 5	—	688 10 0	1 10 0
3048 Wheal Jane, t, Ken	2 13 10	—	4 1/2	3 1/2	4 1/2	11 0 0	1 0 0
4296 Wheal Kitty, t, St. Agnes	5 4 6	—	5	4 2 1/2	5	11 19 6	0 2 6
5000 Wheal Margaret, t, Uny Lelant*	15 17 6	—	—	—	—	82 2 3	0 10 0
80 Wheal Owles, t, St. Just*	76 5 0	—	75	62 10 0	—	4 0 0	Aug. 1872
6000 Wheal Prussia, t, Redruth	2 0 0	—	—	—	—	0 1 0	0 1 0
13000 Wheal Russell, t, Salop*	1 0 0	—	—	—	—	0 3 3	0 6 0
10000 Wheal Whisper, t, c, Warleggan*	1 0 0	—	—	—	—	0 1 6	0 6 0
95000 Wicklow, c, s-i, Wicklow	2 10 0	—	—	—	—	52 9 0	0 2 6
10000 Wye Valley, t, Montgomery*	3 0 0	—	3 1/2	3 1/2	—	0 3 0	0 3 0

FOREIGN DIVIDEND MINES.

Shares	Mines	Paid	Last Pr.	Clos. Pr.	Last Call.
35500 Alamillos, t, Spain*	2 0 0	—	2 1/2	2 1/2	1 7 9 0
80000 Almada and Trito Consol., s-i*	1 0 0	—	1	1/2	0 2 0 0
20000 Australian, c, South Australi	7 7 6	—	1 1/2	1 1/2	0 13 6 0
10000 Battle Mountain*, c, (6240 part pd.)	5 0 0	—	—	—	0 10 0 0
15000 Birdseye Creek, g, California*	4 0 0	—	2 1/2	2 1/2	0 10 0 0
60000 Bensberg, t, Germany	10 0 0	—	—	—	0 10 0 0
13230 Burra Burra, c, So. Australia	5 0 0	—	—	—	0 17 4 0
20000 Cape Copper Mining, t, So. Africa	7 0 0	—	32 1/2	31 3/2	19 15 0 1
30000 Central American Association*	0 16 6	—	1 1/2	1 1/2	0 5 0 0
16000 Chicago, s, Utah	10 0 0	—	—	—	0 6 0 0
21000 Colorado Terrible, t, Colorado*	5 0 0	—	3 1/2	3 1/2	0 13 6 0
71612 Don Pedro North of the Rey*	5 16 0	—	3 1/2	3 1/2	0 5 0 0